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Railroad history is bound to be of interest no matter in what section of this country the road in question operated. The establishment of a better means of communication other than by stagecoach, between Boston and Montreal has always been a subject of interest. One of these routes included the South Eastern Ry. and the Connecticut & Passumpsic Rivers R. R. and it is through the efforts of two of our members—Robert R. Brown and John S. Kendall that we are able to reproduce in this bulletin their respective histories.

From the north-west, we welcome to our columns a new author—Mr. Alden E. Miller, with his contribution on the Baraboo Air Line. Now a part of the main line of the Chicago & North Western Ry., the author has given us a glimpse of its early difficulties and history. We hope that the example set by Mr. Miller will be followed by some of our other members in the mid-west and north-west as both sections are rich in railroad history.

We also welcome to our columns Mr. Schallek who has prepared some interesting data on our abandoned railroads. This is not only an interesting but a serious problem not only as it affects our communities

but from the point of view of the historian. With the passing of time it will indeed be difficult to learn but little of their history.

We are indebted to Captain Robinson for an interesting account of the Buffalo & Susquehanna R. R. and to Mr. Doherty for his account of the Wheeler Station at Malone, N. Y. The article on the Continuous Rail, although it covers modern railroad practice is of decided interest and value and is reproduced as a tribute to Mr. Clarke. The account of the New York & New England R. R. and its locomotives continues the series of our New Haven locomotives. Lastly, we are indebted to Mr. Vanderblue for calling our attention to the letter of George Washington Whistler and preparing the brief story that accompanies it. We hope you will enjoy this publication and that you will find it of interest.

Cover Design

The cover design on this bulletin was furnished by our member—Mr. J. Henderson Barr. It depicts N. Y. & N. E. #183 on the "Air Line Limited"—the five hour train between Boston and New York. The route of this train was via Willimantic, Middletown and New Haven and this fast train was a successor to the famous "White" or "Ghost Train." Mr. Barr has caught the details and spirit of this train and we feel deeply indebted for his efforts.

Twin Cities Chapter

On May 9th of this year, the Secretary of this Society authorized to our members residing in Minneapolis and St. Paul the formation of the Twin Cities Chapter. At the meeting held in May, Mr. Alden E. Miller was elected Chairman, Mr. W. H. Erskine, Vice Chairman and Mr. Philip S. Van Wyck, Secretary-Treasurer. Meetings will be held the first Tuesday of each month, for time and place the Secretary will furnish further details. We welcome the formation of this chapter and a cordial invitation to attend their meetings by any of our members is extended by this group.

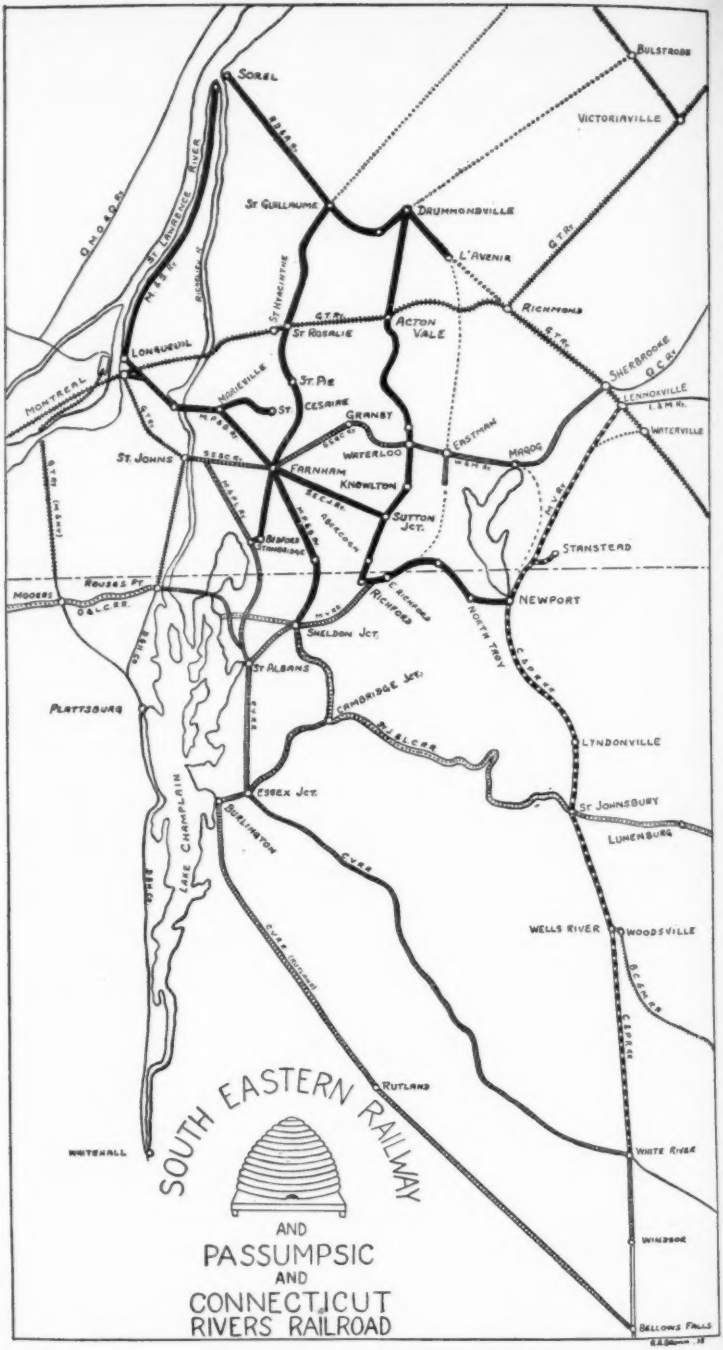
The South Eastern Railway

By Robert R. Brown

The records of the South Eastern Railway, if they exist at all, are buried in the archives of the Canadian Pacific Railway Company and, not being readily available, it has been necessary to compile this history from many scattered sources and, while the general trend of the story and all dates and facts are believed to be correct, it has been very difficult to interpret some of the events and discover the underlying causes.

The South Eastern, although it absorbed a number of smaller roads, never became a large nor important railway in itself but its history is of considerable interest as it has always been an important link between Montreal and the New England states and also because its history covers a period when several of the railroad systems in New England were expanding in a north-westerly direction in an effort to secure control of the "Lakes-to-Boston" and the "Canada" traffic and many of the events in the history of the South Eastern were due to this rivalry in the New England states.

Several roads became international routes at an early date and continue as such to the present day, while others were projected and built but, because of financial troubles or the enmity of established rivals, they withered and died. The first of these "Gateway" roads between Montreal and the New England states, was the Vermont Central Railroad which, in 1851, connected with Canada's pioneer railway, the Champlain and St. Lawrence Railroad, at Rouses Point, and later rivals found the Vermont Central a bitter antagonist. The Rutland and Burlington Railroad followed a year later, connecting with the Plattsburgh and Montreal Railroad and its jointly-operated but Canadian-owned extension, the Montreal and New York Railway, but this route depended on the boats of the Champlain Transportation Company to bridge the gap between Burlington and Plattsburgh. In Canada the Champlain and St. Lawrence hated its rival, the Montreal and New York, far more than the Vermont Central did the Rutland and most of the troubles experienced by this route were due to this enmity. Finally, in 1870, the Vermont Central leased the Rutland. The Grand Trunk Railway line from Montreal to Portland, with steamboat connections to Boston, was the third international route in this area and, as the G. T. R. controlled most of the railway traffic in Canada for many years, it naturally kept most of the international traffic for its own line, until many years later it acquired a controlling interest in the Central Vermont. The fourth "gateway" line was the Connecticut and Passumpsic Rivers Railroad which, after its proposed Canadian connection, The Stanstead, Shefford and Chambly Ry., was bought by the Vermont Central, finally succeeded, with the co-operation of the South Eastern Railway, in opening a through line to Montreal in 1873. With the exception of the Maine Central's strange adventure through the woods to a dead-end at Lime Ridge, the only other gateway was the Portland and Ogdensburgh scheme and its Canadian extension, the Montreal, Portland and Boston Railway. This


SOUTH EASTERN RAILWAY
AND
PASSUMPSIC
AND
CONNECTICUT
RIVERS RAILROAD
SOREL
BULSTRODE
VICTORIAVILLE
ST GUILLAUME
DRUMMONDVILLE
L'AVENIR
RICHMOND
ACTON VALE
ST ROSALIE
LONGUEUIL
MONTREAL
ST PIE
ST CESAIRE
GRANBY
WATERLOO
EASTMAN
MAGOG
SHERBROOKE
LENNOXVILLE
WATERVILLE
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FARNHAM
KNOWLTON
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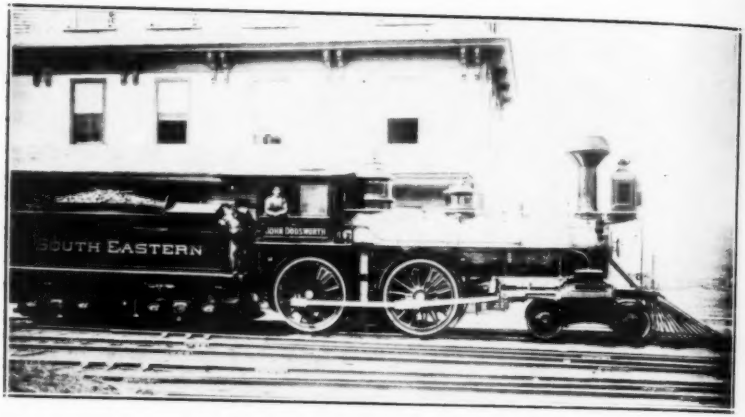
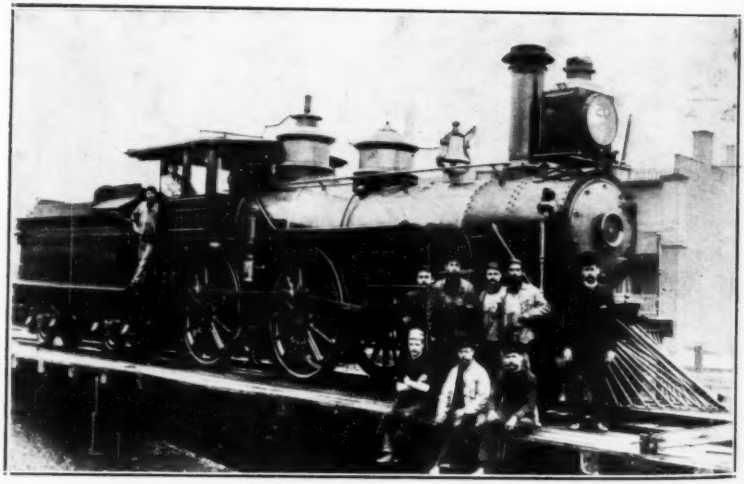
WHITEHALL
WHITE RIVER
WINDSOR
BELLOWS FALLS
LAKE CHAMPLAIN



S. E. Ry. "John Dodsworth." Rhode Island, 1881



S. E. Ry. ⇄29. Rhode Island, 1883

project never fully materialized, however, as the main line was blocked by the Central Vermont's control of the line between Swanton and Rouse's Point and financial difficulties soon separated the Vermont Division from the rest of the line. The Canadian section was taken over by the South Eastern and partly dismantled.

The South Eastern Railway comprised the following units: The first two really formed one continuous line of railway; one company, the South Eastern Counties Junction Railway, built the part in Canada and the Missisquoi and Clyde Rivers Railroad built the part in the United States.

South Eastern Counties Junction Railway

From West Farnham, Que., to the boundary near Richford, Vt., and from the boundary near East Richford to the boundary near North Troy.

Missisquoi and Clyde Rivers Railroad

From the boundary, about midway between Abercorn, Que., and Richford, to the boundary near East Richford and from the boundary near North Troy to Newport, Vermont.

Richelieu, Drummond and Arthabasca Railway

Drummondville to Sorel, Drummondville to L'Avenir and Drummondville to Sutton Junction.

Montreal, Portland and Boston Railway

St. Lambert to Sheldon Junction and Marieville to St. Cesaire.

Lake Champlain and St. Lawrence Junction Railway

Stanbridge to St. Guillaume.

Montreal and Sorel Railway

St. Lambert to St. Joseph de Sorel.

The mileage of the system at its greatest extent was:

West Farnham to Newport	65 miles
Sorel to Drummondville	36 miles
Drummondville to L'Avenir	12 miles
Drummondville to Sutton Jct.	59 miles
West Farnham to St. Lambert	33 miles
Marieville to St. Cesaire	9 miles
West Farnham to Sheldon Jct.	31 miles
Stanbridge to St. Guillaume	61 miles
St. Lambert to St. Joseph de Sorel	44 miles
Diamond Crossing to Longueuil	3 miles
St. Lambert to Montreal (G. T. R.)	6 miles
	359

The South Eastern Counties Junction Railway was chartered in 1866 to build a railway in a south-easterly direction from West Farnham, a station on the Stanstead, Shefford and Chambly Railway, which had been built several years before. At first it was a local line to serve the territory between the S. S. & C. Ry. and the boundary but the possibility of connecting with an American road was not lost sight of and it soon came under the influence of the Connecticut and Passumpsic Rivers Railroad. This road, generally known as the Passumpsic, was built from White River through Wells River and St. Johnsbury to Newport, which is close to the boundary and at the southern end of Lake Memphremagog, which extends about 30 miles into Canada. The adjacent parts of the province of Quebec, known as the Eastern Townships, were and still are a rich farming, lumbering and mining country and the extension of the Passumpsic Railroad northward to Newport was built for the purpose of tapping the resources of this region as well as to form part of a through line to Montreal, independent of the Vermont Central and the Grand Trunk. The Passumpsic Railroad was completed to Newport on October 5th 1863 and the original intention was to connect, at or near that town, with the Stanstead, Shefford and Chambly Railway, which company was chartered in 1853 to build a railway from St. Johns by way of West Farnham, Granby, Waterloo, Magog and Stanstead to the boundary near Newport. Between 1857 and 1860, it was built from St. Johns to Waterloo but funds ran out and, about the time the Passumpsic was completed to Newport, the Vermont Central became alarmed; bought a controlling interest in the S. S. & C. and immediately put a stop to the proposed extension and connection. In 1864, the Vermont Central built a new line from Swanton to a Junction with the S. S. & C., near Iberville, thus, as they thought, effectively barring the Passumpsic from Canada.

For many years the people of Brome County had been demanding a railway that would give them a direct connection with Montreal and also an outlet to the United States so a number of the most prominent citizens of the county organized the South Eastern Counties Junction Railway to build from West Farnham to Richford or Newport and to build or buy such branch lines as might be considered necessary. One of the principal promoters of the company was Colonel the Honourable Asa Belknap Foster, Senator for the District of Belford, and he became the contractor and manager. His mother was related to Col. Belknap, who had built a number of railroads in the New England states, and Col. Foster himself had built and, for several years, managed the Stanstead. Shefford and Chambly, before it came under the control of the Vermont Central. Also he had built, for the Vermont Central, the Montreal and Vermont Junction Railway, from S. S. & C. Jct., near Iberville, to a connection with the Vermont and Canada Railroad at the boundary near Swanton.

The construction of the South Eastern Counties Junction Railway was started at West Farnham in the spring of 1870, under the immediate direction of engineer John Blackie. The almost inevitable ceremony of turning the first sod was performed on Dominion Day, July 1st, but it is evident that considerable work was done before that. The line was

completed to Richford two years later and regular service between Montreal and Richford commenced on June 10th 1872; the through cars being handled by the Grand Trunk Railway, between Montreal and St. Johns, (this part of the G. T. R. was standard gauge), by the Stanstead, Shefford and Chambly Railway, from St. Johns to West Farnham, and by the South Eastern Counties Junction Railway, from West Farnham to Richford.

The parts of the line between Richford and Newport, in the United States, were built by the Missisquoi and Clyde Rivers Railroad and were completed in February 1873, and regular through service from Montreal to Newport and Boston commenced on July 1st.

In 1873 the South Eastern Counties Junction Railway purchased the Richelieu, Drummond and Arthabasca Railway which, in 1871, had built a line from Sorel to Drummondville, and a new charter was obtained under which the two roads amalgamated as the South Eastern Railway Company. A connecting link was started, from Sutton Jct., to Drummondville, to connect the Northern Division with the Main Line but, owing to the depression of 1873, it was not completed until several years later. There is a rather amusing story in connection with the delay in completing this line; the town of Waterloo had promised to invest $30,000 in the company on one condition, "That the whistle of a locomotive be heard in the town on Christmas Day." Christmas Eve the railway was still far away so a small locomotive was loaded on a large sleigh and hauled into town during the night and bright and early Christmas morning steam was raised and the people were awakened by the sound of the locomotive whistle. The joke was on the town and it paid up cheerfully.

On August 13th 1874 the railway met a serious set-back; a train left Richford for Montreal and near Sutton ran into a washed-out culvert. The engine and baggage car crossed without much damage but the smoking car was telescoped by the day coach and several prominent men of the district were killed. The accident was caused by one of those long rainy spells which do so much damage in the Eastern Townships and Vermont but the railway was severely criticized for not having the section men patrol the track in such dangerous weather and, for a time, public confidence in the road was shaken.

The financial set-up of the combined South Eastern Railway and Missisquoi and Clyde Rivers Railroad in 1873 was:

Capital Stock paid up	$ 833,251.
6% Bonds	894,000.
Canadian Government Subsidy	172,350.
	$1,899,601.

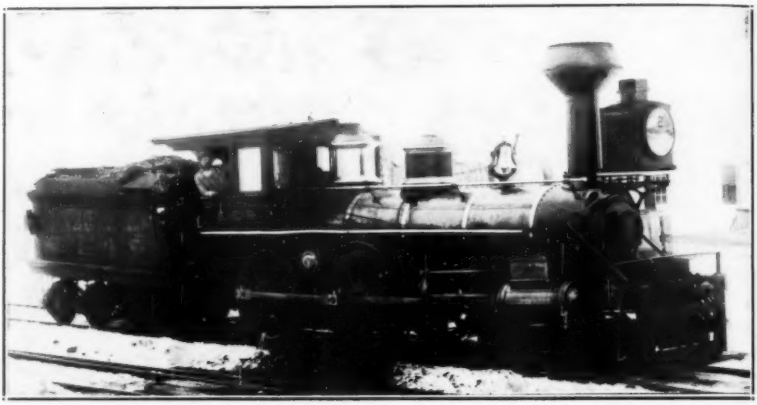
Bonds to the extent of $438,000. were owned by various municipalities along the line of Canada and the Connecticut and Passumpsic Rivers Railroad owned bonds, secured by a mortgage on the American section, amounting to $350,000. In addition to the $350,000. loaned to the M. & C. R. R. R., the Passumpsic had loaned various amounts to the

South Eastern, covered by notes secured by rolling stock and other collateral, and by 1875 these totaled $140,079.36. In order to protect these loans and also to control the through line from Boston to Montreal, the Connecticut and Passumpsic Rivers Railroad and the Boston, Concord and Montreal Railroad, on March 15th 1875, jointly leased the South Eastern system. The lease was to run for one year and by its terms the lessees were to maintain and operate the road, guarantee the bond interest and pay a certain interest on the stock. To reduce the loans, the Passumpsic took possession of three comparatively new South Eastern locomotives; No. 5, the "Newport;" No. 6, the "Montreal," and No. 7, the "Col. Foster," but the "Col. Foster" subsequently returned to the S. E. R. The lease expired on March 15th 1876 and although it was not formally renewed, the Passumpsic and the B. C. & M. continued to operate the S. E. R. on the same basis.

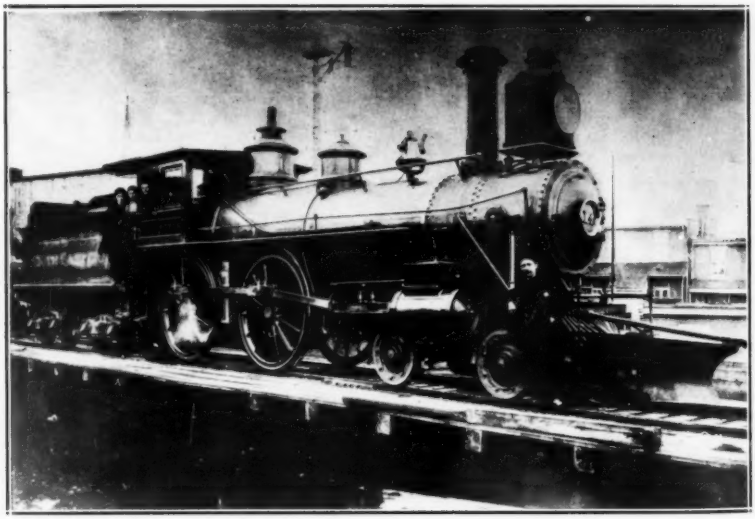
Considerable difficulty was experienced in raising the necessary funds for the completion of the Northern Division; 54 miles of the branch, from Sorel to Acton Vale, were completed in 1876 and also 16 miles, from Sutton Jct., to Waterloo but on the remaining 24 miles only a small part of the grading had been done. Col. Foster tried unsuccessfully to raise the money in England but, owing to the poor showing made by the Grand Trunk, Canadian railway securities were not popular in London.

In the summer of 1877 the Montreal, Portland and Boston Railway was completed from St. Lambert to Farnham and running rights were given to the S. E. R. between those points, thus permitting the S. E. R. to abandon their previous use of the Stanstead, Shefford and Chambly and the Grand Trunk Railways via St. Johns.

The operation of the South Eastern was unprofitable and the Boston, Concord and Montreal withdrew from the management of the road in March 1877; the bond interest was in arrears and the maintenance of the road had been neglected. In the fall of 1877 took place the sensational raid which was the talk of the border country for years after. Col. Foster, to protect his interests and those of the other Canadian shareholders, decided to take forcible possession of the South Eastern and oust the Passumpsic for breach of the terms of the lease. The actual seizure took place in October and the Vermont Central, elated at the opportunity of injuring a rival, loaned Col. Foster two locomotives, a work train and the necessary train crews. A locomotive belonging to the Passumpsic Railroad was found in the roundhouse at Farnham; it was taken out by Donald H. Martin, a Vermont Central engineer, who ran it down to North Troy and "killed" it. This engine was followed by the work train, including a pile-driver, and at the boundary, near North Troy, telegraph poles were driven down between the rails, rails were removed and several culverts were destroyed, thus effectively blocking the line. Col. Foster then organized an operating staff and worked the railway between Farnham and Mansonville (now Highwater); all through services being suspended. Shortly after these events, Col. Foster was invited to Boston to confer with the directors of the Passumpsic Railroad and while returning to Montreal he was arrested



S. E. Ry. #2. Hinkley, 1852. Rebuilt.



S. E. Ry. "C. W. Foster." Rhode Island, 1879.

on a trumped up charge and thrown into jail at Newport. For some years he had been suffering from a digestive ailment and was on a very strict diet; the food in the Newport jail did not suit him and he refused to eat but when he was released the next day he hurried to Montreal, went to the Ottawa Hotel and ordered a veritable banquet—and died of acute indigestion the next morning, November 1st, 1877.

Col. Foster's son, C. W. Foster, then operated the road for a time but in 1878 Hon. Bradley Barlow, a native of Vermont, bought a controlling interest in the South Eastern with money supplied, it is said, by Wells, Fargo and Company. It is not likely that Barlow had any direct connection with the Passumpsic Railroad but he certainly was on friendly terms with that company as is indicated by the Passumpsic Report of July 1879, "The South Eastern Railway, from which we expected so much years ago and which has caused so much loss and unpleasant controversy, has lately passed into other hands and is now being put into first rate condition. Our relations with that road at the present time are of the most friendly nature and we feel confident will continue both pleasant and advantageous." Not only was the road thoroughly repaired but all through services were immediately restored. One of Mr. Barlow's first acts was to complete the missing link between Waterloo and Acton Vale, on the Northern Division, and through service from Sutton Jct., to Sorel started early in 1879. In 1879 the Montreal, Portland and Boston Railway was leased by the South Eastern, the Lake Champlain and St. Lawrence Junction Railway in 1881 and the Montreal and Sorel Railway in 1882.

From the beginning, through cars from the South Eastern had entered Montreal over the Grand Trunk, first by way of St. Johns and after 1877 by way of St. Lambert, being attached to Grand Trunk trains for the trip over G. T. lines but, after the South Eastern completed its Northern Division and leased the Montreal, Portland and Boston Railway in 1879, the Grand Trunk began to be very unfriendly; South Eastern trains were delayed deliberately and the connection became so unsatisfactory that the S. E. R. decided to find some other way of getting into Montreal. In the meantime, the Quebec, Montreal, Ottawa and Occidental Railway had been built along the north shore of the St. Lawrence River and, needing an outlet to the United States independent of the Grand Trunk, arrangements were made with the South Eastern for direct interchange. The S. E. R. built from the present M. & S. C. Jct., crossed the Grand Trunk about 3 miles back of St. Lambert and ran to Longueuil wharf, which is directly opposite the eastern part of Montreal. It was intended to build a bridge at this point as soon as finances permitted but for the time being a car ferry was to be used during the summer and in winter a track was to be laid across on the ice, as had been done successfully in Russia. To operate this crossing, the Hochelaga and Lougueuil Railway Ferry Company was organized jointly by the S. E. R. and the Q. M. O. & O. and this unusual method of crossing the river was used during four winters, 1880 to 1883. (See Bulletin 22). The press, probably inspired by the Grand Trunk, criticized the project severely but when it was proven a success and that the South

Eastern was no longer dependent on the Grand Trunk there was a sudden change and the G. T. R. made strenuous efforts to regain the traffic that had been lost. Arrangements were made whereby, on and after June 27th, 1881, the passenger trains of the South Eastern would again run to Bonaventure Station but this did not last long; the Grand Trunk did not give proper service and the S. E. R. returned to Longueuil.

Because of the acquisition of several branch lines in 1879, 1881 and 1882 and the purchase of a large number of new locomotives and cars, the South Eastern Railway again found itself in financial difficulties but this time the Passumpsic Railroad, which had already lost so much in the venture and was so disappointed in it, refused to help again. The Canadian Pacific Railway, which was then rapidly pushing westward to the Pacific Coast, then had its eastern terminus in Montreal and in winter, when the St. Lawrence River was frozen, it was at the mercy of the Grand Trunk for connections to the Atlantic seaboard. Early plans called for a line to Boston and another to New Brunswick, to connect there with the Intercolonial Railway to Halifax, and with this object in view the directors of the C. P. R. decided to get control of the S. E. R. to form part of these proposed through lines. Negotiations for this acquisition were handled by Mr. A. B. Chaffee, a director of the S. E. R. and during the summer of 1883 the C. P. R. bought up 67½% of the outstanding S. E. R. bonds, which had a par value of $2,160,000., for $1,489,761.94. In July 1883 the S. E. R. went into receivership, on October 6th the bondholders foreclosed and the road was then operated by the bondholders or, in other words, by the C. P. R. The South Eastern trains again began entering Montreal over the Grand Trunk, from St. Lambert to Bonaventure station and continued until 1887, when the C. P. R. bridge at Lachine was completed; then the S. E. R. train ran from Farnham to Montreal over the new C. P. R. line by way of St. Johns.

During the winter of 1891 the bridge over the Yamaska River, on the Northern Division, was carried away by the ice and all train service was discontinued between Sorel and St. Guillaume and two years later the lines between St. Guillaume and Drummondville and between Drummondville and L'Avenir were abandoned. In 1894, the Dominion government offered a subsidy of $50,000. towards the reconstruction of the Yamaska bridge and the restoration of train service between Sorel and Drummondville but the line had never been profitable and the company refused the offer, finally selling the abandoned section, in 1899, to the South Shore Railway for $25,000.

The bondholders operated the road for about ten years but the arrangement was not satisfactory, so, on August 28th, 1891, the Montreal and Atlantic Railway was incorporated to "own and operate the railway hitherto known as the South Eastern Railway", although the formal reorganization was not completed until three years later, as described in the Annual Report of the C. P. R. for 1894:

> "The South Eastern Railway, connecting your system with the New England states and Atlantic seaboard, and of which your company acquired control in 1883, has been reorganized as the Montreal and Atlantic Railway Co. The

original bonds have been converted into ordinary stock, of which your company holds $2,160,000. or 67½% of the entire issue. New first mortgage bonds have been created to the extent of $1,065,000. and of these $500,000. are held by the Treasurer of your company for various claims and advances with interest thereon:

Advances and claims	$424,144.80
Interest to Oct. 1st 1894	75,637.48
	$499,782.28

and $108,000. are similarly held by the Boston and Maine Railroad which, with the Concord and Montreal Railroad, is also interested in the property. The remainder of the bonds are held in the treasury of the new company against future needs. The earnings of the Montreal and Atlantic Railway are more than sufficient to meet the interest on the bonds."

For many years the Montreal and Atlantic Railway was worked by the Canadian Pacific "for the account of the owners," probably on a cost plus basis but on September 15th, 1931 the property was leased by the C. P. R. for 999 years from October 1st at an annual rental of $33,120.00. At the same time, the rolling stock, formerly lettered M. & A. was changed to C. P. R. and the old South Eastern Railway was finally absorbed into the Canadian Pacific Railway.

THE MISSISQUOI AND CLYDE RIVERS RAILROAD COMPANY

This company was incorporated by Act of the Legislature of the State of Vermont on November 11th, 1869 to build parts of a line from Richford to Newport. The first meeting of the stockholders, at which the Board of Directors was elected, was held at Newport on December 30th, 1869 and Lucius Robinson, of Newport, was elected President and O. N. Elkins, of North Troy, Treasurer. At another meeting, held on June 17, 1870, the stockholders authorized the letting of a contract to Luther Baker, of Richford, and A. B. Foster, of Waterloo, to build the first section of the road from Richford towards Newport at $24,000. per mile for the first two miles and $27,000. per mile for the next 4½ miles. Owing to the difficulty of raising the necessary funds, no other work was done for several years but on March 2nd, 1872 the stockholders voted to mortgage their road to Emmons Raymond, of Cambridge, Mass., and Timothy P. Redfield, of Montpelier, Vt., for a loan of $350,000. to pay for the completion of the road. Raymond and Redfield represented the Connecticut and Passumpsic Rivers Railroad, as the stockholders of that company had recently authorized their directors to assist the M. & C. R. R. R. to the extent of $350,000. and to issue notes to cover these advances. At the same meeting, the stockholders of the M. & C. R. R. R. voted to let the building of the balance of the line through to Newport to Baker and Foster at $27,000. per mile and to lease their road to the South Eastern Counties Junction Railway. The line was completed to Newport in February 1873 and through service commenced on July 1st.

In 1879, the C. & P. R. R. R., as mortgagee of the M. & C. R. R. R., brought a Bill in Chancery in the County of Orleans Court against the M. & C. R. R. R., including in their suit the S. E. R. which had become lessee of the M. & C. R. R. R., alleging breach of the conditions of the

mortgage and non-payment of interest on the bonds and asked that the mortgage be foreclosed. The court issued a decree in the September 1879 term transferring legal title in the road from the Missisquoi and Clyde Rivers Railroad Company to the mortgagees, or in other words to the Connecticut and Passumpsic Rivers Railroad. On December 9th, 1880, the mortgagees and owners of the bonds associated themselves into a corporation under the name of the Newport and Richford Railroad Company, with a capital stock of $350,000., represented by 7000 shares of $50. each. On June 8th, 1881 the Newport and Richford Railroad was leased to the South Eastern Railway for 99 years and this lease is still in force.

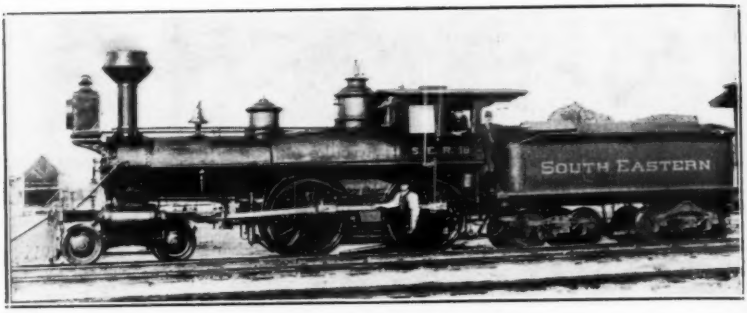
THE RICHELIEU, DRUMMOND AND ARTHABASCA RAILWAY COMPANY

This company was chartered in 1869 to build a railway, with wooden rails, from the town of Sorel, at the confluence of the St. Lawrence and Richelieu Rivers, to Richmond, on the main line of the Grand Trunk Railway, and to Bulstrode, on the Three Rivers branch of the Grand Trunk. It was built from Sorel to Drummondville, a distance of 37 miles, and was opened for traffic on September 21st, 1871, but the extension to Richmond was built only as far as L'Avenir, 12 miles from Drummondville. In 1873 this company amalgamated with the South Eastern Counties Junction Railway to form the South Eastern Railway and no further work was done on the Richmond extension but a new line was started from Drummondville through Acton Vale, Waterloo and Knowlton to Sutton Jct., and the original part between Drummondville and Sorel was built with iron rails. The connecting line was not completed until 1879 and for six years the completed part of the Northern Division, from Sorel to Acton Vale, was isolated from the rest of the road.

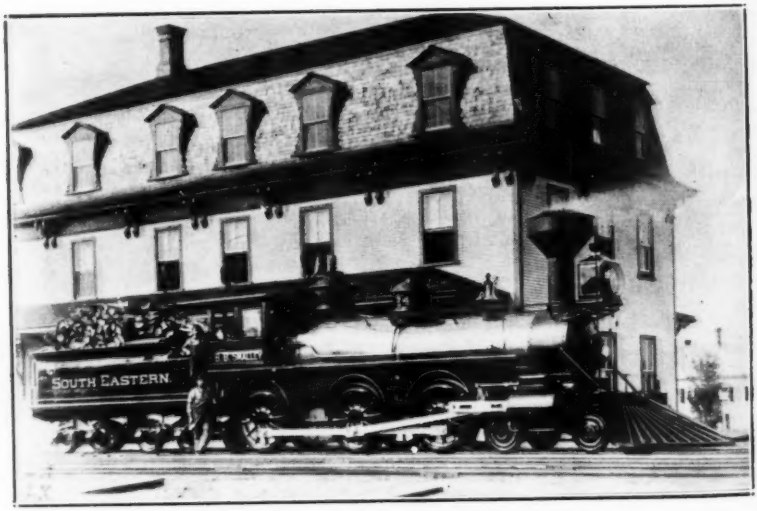
THE MONTREAL, PORTLAND AND BOSTON RAILWAY

This line extended from St. Lambert through Chambly, Marieville, Farnham and Frelighsburg to Sheldon Junction, Vermont, and included a short branch from Marieville to St. Cesaire. It originated in 1866 when the Missisquoi Junction Railway was chartered to build a line from Farnham to the boundary, near Franklin, Vt., and in 1871 when the Montreal, Chambly and Sorel Railway was chartered to build from Montreal to Sorel, by way of Chambly, and a branch from Chambly to the boundary, near Swanton, Vt. The latter company built from St. Lambert to Chambly and the line was opened on September 25th, 1873.

In the meantime, a large and promising system of railway lines had been projected in the United States to extend from Portland, Maine, to Ogdensburgh, N. Y., at the foot of Lake Ontario navigation, and with connections to Boston over the Eastern Railroad, from North Conway and Portland. The promoters of the Montreal, Chambly and Sorel and the Missisquoi Junction Railways decided to connect with the Portland and Ogdensburgh Railroad, so, in 1873, a new charter was obtained and



South Eastern Ry. #18. Rhode Island, 1880.



S. E. Ry. "B. B. Smalley." Rhode Island, 1881.

the two companies amalgamated to the Montreal, Portland and Boston Railway. The manager and principal promoter was Ashley Hibbard, of Frelighsburgh, and for years the railway was known locally as the Hibbard road. Construction of the line from Chambly to Sheldon Jct., was soon started and it was expected that this would form part of a through line from Montreal to Portland and Boston, independent of the Grand Trunk and the Vermont Central and also of the South Eastern-Passumpsic-Concord line to Boston.

However, an agreement was made with the South Eastern Railway whereby the trains of that company would operate over the M. P. & B., from Farnham to St. Lambert; thus permitting the South Eastern to abandon the old route by way of St. Johns, which was controlled by rival interests. The trains of the South Eastern commenced running to St. Lambert in the summer of 1877 but several months later, when Col. Foster seized the South Eastern, through service was discontinued and the M. P. & B. had to rent rolling stock from the Grand Trunk and it was not until February 1st, 1878 that even local service was resumed. When Bradley Barlow bought the South Eastern in 1879 he also leased the Montreal, Portland and Boston and the part between Farnham and St. Lambert became part of the main line. The road was completed to Sheldon Jct., in the early summer of 1881 but only one train was run through. On July 1st, 1880, the Portland and Ogdensburgh project broke up; due, it is said, to the enmity of the Vermont Central, and the Vermont Division of the Portland and Ogdensburgh became the St. Johnsbury and Lake Champlain. Because of the abandonment of the proposed through services, the Montreal, Portland and Boston Railway was left with a very comprehensive name but with nowhere to go. The part between Farnham and Sheldon Jct., was never regularly operated by the South Eastern, although the contractor did give some service during the construction period, and, immediately after it was completed and turned over to the company, the rails were removed and the line dismantled.

The Canadian Pacific Railway, operating the South Eastern, abandoned the Montreal, Portland and Boston in 1891 and it was then taken over by the Central Vermont and operated as part of the Waterloo branch. In 1898 the Central Vermont bought the road at a foreclosure sale and then reorganized it as the Montreal and Province Line Railway, and, in 1901, rails were again laid down between Farnham and Frelighsburgh. On November 1st, 1923, it was leased to the Canadian National Railways and now it is abandoned except the part operated by the Montreal and Southern Counties (electric) Railway. At the present time it is probably one of the most involved examples of ownership and control; the road is owned by the Central Vermont but leased to the Canadian National, which owns the Central Vermont; the C. N. R. has leased it to the Montreal and Southern Counties Railway, which also is owned by the C. N. R.

THE LAKE CHAMPLAIN AND ST. LAWRENCE JUNCTION RAILWAY

This company was chartered in 1872, as the Philipsburg, Farnham and Yamaska Railway, to build a narrow gauge 3′ 6″ line from Missisquoi Bay, at the northern end of Lake Champlain, to Doucets Landing, on the south shore of the St. Lawrence River opposite the city of Three Rivers. In 1876 the charter was amended and the name of the company changed and construction was started southward from St. Rosalie Jct. In the following summer it was completed as far as St. Pie, a small second-hand locomotive was purchased from the Toronto and Nipissing Railway and regular service started. In 1881 the road was completed from Stanbridge, on the Central Vermont, through Farnham and St. Rosalie to St. Guillaume, on the Northern Division of the South Eastern, and in the same year the line was leased by the South Eastern, for 29 years, altered to standard gauge and eventually bought by the South Eastern.

THE MONTREAL AND SOREL RAILWAY

This was the last road acquired by the South Eastern; it was chartered in 1881 and it was completed and opened for traffic on April 1st, 1882. It was leased on November 1st, 1882 for a period of 21 years but, when the South Eastern system broke up about a year later, the lease was cancelled. For about 16 years the Montreal and Sorel was operated by the Grand Trunk but in 1899 it became the South Shore Railway, which in time became the Quebec, Montreal and Southern. It was bought by the Delaware and Hudson Company in 1906 and by the Canadian National in 1929.

LOCOMOTIVES OF THE SOUTH EASTERN RAILWAY

Dimensions are as at June 30th, 1881 and, in the case of second hand engines, these may differ considerably from the original dimensions.

1.	"Richelieu"	4-4-0	14x24	42″	1851	Portland	#26
2.	"St. Francis"	4-4-0	14x24	57″	1852	Hinkley	#384

These two were formerly Grand Trunk nos. 9 and 8 and were bought by the Richelieu, Drummond and Arthabasca Railway in 1871, at which time they were altered from broad gauge. The "St. Francis" was shunter at Richmond for many years.

3. "Dunham" 4-4-0

No details known. This was probably the first engine on the South Eastern Counties Junction Railway as, in 1871, it was given to Hinkley as part payment for no. 9, "Brome". Probably the "Dunham" did not have a number.

3. "Sorel" 4-4-0 15x20 60″ 1852 Souther

Formerly Vermont Central No. 23 "Waterbury". Bought 1872.

4. "Farnham" 4-4-0 14x24 60″ 1851 Amoskeag

Formerly Vermont Central no. 4 "Ottawa". Bought 1871. Later in same year given to Hinkley as part payment for no. 9 "Brome".

4. "Roxton" 4-4-0 15x24 60" (1849 Hinkley (1864 V. C. R. Rebuilt

Formerly Vermont Central "General Taylor" and "Old Zack". Bought 1872.

5. "Newport" 4-4-0 16x24 60" 1872 Rhode I. #416

A new engine. When the S. E. R. was leased by the Passumpsic R. R., this engine was taken as part settlement of certain claims. The "Newport" was traded to the Woodstock R. R., becoming the second "A. G. Dewey". Woodstock's first "A. G. Dewey", a Manchester engine, became Passumpsic "S. S. Thompson". The "Newport" as the "A. G. Dewey" remained on the Woodstock for many years and then was sold to Stratton & Co., of Penacook, N. H. where it was in shunting service until a few years ago.

5. "Newport" 4-4-0 16x24 54"

Details lacking. Probably a second hand engine bought in 1879.

6. "Montreal" 4-4-0 16x24 60" 1872 Rhode I. #417

A new engine. Sold to the Passumpsic R. R. in 1875.

6. "Nalhegan" 4-4-0 16x20 60" (1849 Hinkley (1859 V. C. R. Rebuilt

Formerly Vermont Central no. 6 "Nalhegan". Bought 1875.

7. "Col. Foster" 4-4-0 14x24 60" 1871 Rhode I. #311

First new engine owned by the S. E. R. It was taken by the Passumpsic in 1875 but returned to the S. E. R. after a few months.

8. "North Troy" 4-4-0 16x24 60"

Other details lacking. Believed to have been a second hand Rhode Island, bought in 1871.

9. "Brome" 4-4-0 16x24 60" 1871 Hinkley

A new engine, survived until after 1905.

10. "Joseph Clark" 4-4-0 15x24 60" 1863 Vermont Central R. R.

Formerly Vermont Central no. 1 "Joseph Clark". Bought 1871. Some authorities claim that this was not a new engine in 1863 but was a reconstruction of the old "Governor Paine" built in 1849 by Baldwin.

11.	"Waterloo"	4-4-0	16x24	60"	1879	Rhode I.	#702
12.	"Farnham"	4-4-0	16x24	60"	1879	Rhode I.	#701
13.	"Bradley Barlow"	4-4-0	16x24	60"	1879	Rhode I.	#805
14.	"C. W. Foster"	4-4-0	17x24	66"	1879	Rhode I.	#703
15.	"Sutton"	4-4-0	16x24	60"	1880	Rhode I.	#885
16.	"A. B. Chaffee"	4-4-0	16x24	60"	1880	Rhode I.	#886
17.	"L. Robinson	4-4-0	16x24	60"	1880	Rhode I.	#887
18.	"Richford"	4-4-0	16x24	60"	1880	Rhode I.	#888
19.	"St. Pie"	4-4-0	11½x18	39"	1871	Kingston	
20.	"Abbottsford"	4-4-0	13x18	45"	1871	Kingston	
21.	"Bedford"	4-4-0	13x18	45"	1871	Kingston	
22.	"L'Ange Gardien"	4-4-0	13½x20	52"	1871	Kingston	

Nos. 19 to 22 were built by the Canadian Locomotive and Machine Co., Kingston, for the Toronto and Nipissing Railway, 3' 6" gauge. They were bought by the Lake Champlain and St. Lawrence Junction Railway; the "St. Pie" in 1876 and the other three in 1879. When taken over by the S. E. R. they were converted to standard gauge. "L'Ange Gardien" (the Guardian Angel) was one of the most unusual but perhaps one of the most appropriate names ever given to a locomotive. Nos. 19 and 20 were sold to the Orford Mountain Railway.

23.	"Longueuil"	4-4-0	16x24	63"	1881	Rhode I.	#1078

Shortly after it was received, this engine was changed to no. 26, the "John Dodsworth".

23. 4-4-0

This was an old engine bought in 1881 or 1882. It had no name but the boys used to call her the "Grasshopper". It is supposed that it was the "J. M. Pangman" of the Laurentian Railway and was bought for use on the Ice Railway across the St. Lawrence River. The unusual outside valve gear would account for the nickname. See Bulletin 22 facing page 42.

24.	"B. B. Smalley"	4-6-0	18x26	56"	1881	Rhode I.	#1076
25.	"Chambly"	4-4-0	16x24	63"	1881	Rhode I.	#1077
26.	"John Dodsworth"	4-4-0	16x24	63"	1881	Rhode I.	#1078

Formerly No. 23, the "Longueuil".

27.	"Rougement"	4-4-0	16x24	63"	1883	Rhode I.	#1334
28.	"St. Cesaire"	4-4-0	17x24	63"	1883	Rhode I.	#1335
29.	"T. A. Mackinnon"	4-4-0	18x22	69"	1883	Rhode I.	#1358

No. 29 became Montreal and Atlantic No. 7032 and survived until 1935.

30.	"H. A. Alden"	4-4-0	18x22	69"	1883	Rhode I.	#1359
31.	"Acton"	4-4-0	17x24	63"	1883	Taunton	#890
32	"Wickham"	4-4-0	17x24	63"	1883	Taunton	#892

These two, Nos. 31 and 32, were not paid for and they were repossessed by the Taunton Locomotive Works. The "Acton" was then sold to the Eastern Railroad as No. 109 "Wamesit"

and the "Wickham" went to the Little Rock and Fort Smith R. R. as No. 14 "F. G. Dexter."

After the Canadian Pacific Railway took over the South Eastern Railway, many of the South Eastern locomotives were sent away, mostly to the International of Maine Division where they ran between Megantic and Brownville Jct. Only twelve remained on the Montreal and Atlantic, Nos. 9, 11, 13, 14, 17, 24, 25, 26, 27, 28, 29 and 30; they were all in service in 1905 but after that date they were replaced gradually by new engines:

417	4-6-0	19x24	62"	1915	C.P.R., Angus Shops
418	4-6-0	19x24	62"	1915	C.P.R., Angus Shops
419	4-6-0	19x24	62"	1915	C.P.R., Angus Shops
420	4-6-0	19x24	62"	1915	C.P.R., Angus Shops
421	4-6-0	19x24	62"	1915	C.P.R., Angus Shops
868	4-6-0	22½x28	63"	1910	C.P.R., Angus Shops
869	4-6-0	22½x28	63"	1910	C.P.R., Angus Shops
870	4-6-0	21x28	63"	1910	C.P.R., Angus Shops
2551	4-6-2	22½x28	70"	1909	C.P.R., Angus Shops
2552	4-6-2	22½x28	70"	1909	C.P.R., Angus Shops
6177	0-6-0	18x26	52"	1905	C.P.R., Angus Shops

These engines were all numbered in the C. P. R. series but they were lettered "M. & A."

(The author wishes to thank Mr. Benj. Thomas, not only for his kindness in furnishing the photographs used to illustrate this article but for his locating valuable data and for his helpful suggestions.)

T. A. MacKinnon

Tristam Allan MacKinnon was born in Londonderry, Ire. July 7, 1845 and when a boy came to Canada with his parents and settled in the Province of Quebec. He completed his education in the public schools and in the College of St. Francis and in 1867 began his railroad career as clerk and timekeeper in the Passumpsic Railroad Shops at Lyndonville, Vt.

It was not long before he was promoted to be Superintendent's clerk. His ability was recognized still further in 1873 when he was appointed Superintendent of the Brockville & Ottawa & Canada Central Ry.

Remaining there until 1880 he then became Manager of the South Eastern Railway of Canada with headquarters in Montreal. In 1885 he went with the Canadian Pacific Ry. and was made General Superintendent of its Ontario & Atlantic Division. Later he became Transportation Manager for that Company.

In 1890 he was tendered the position of General Manager of the Concord & Montreal Railroad and in 1894 became General Manager of the Boston and Maine Railroad at the invitation of President Lucius Tuttle who had been associated with him in the Canadian Pacific Company. He was later made First Vice President as well as General Manager and up to the time of his death had discharged his duties with singular fidelity and success.

He died at his home at Marblehead Neck, Mass. on July 12, 1903 after a three days' severe heart attack. The funeral rites were held in Emanuel Episcopal Church, Newbury Street, Boston and at the conclusion of the ceremonies the body was taken to Montreal in a special train where on Wednesday, July 15th interment took place in the Mount Royal Cemetery.

The above sketch of the business career of Mr. T. A. MacKinnon is taken from the *"Boston & Maine Messenger"* of August 1, 1903.

The Connecticut and Passumpsic Rivers R. R.

By JOHN S. KENDALL

Soon after the first railroads were constructed in Massachusetts, the enterprising merchants of Boston and Montreal felt that a railroad should be built connecting their respective cities. The time seemed opportune, for existing stage lines were so overcrowded that it was necessary to run two and three stages each trip, and in January, 1836 a group of influential citizens along the Connecticut and Passumpsic River valleys met at Windsor, Vermont to consider the construction of a railroad. The chairman of the meeting was Erastus Fairbanks of St. Johnsbury, who later became president of the railroad and, strange as it may seem, the promoters of the proposed road were the owners of stage lines in direct competition.

The first charter of the Connecticut and Passumpsic Rivers Railroad Company was issued under an act of the Vermont legislature approved November 10, 1838. This charter lapsed but was revived by an act approved October 31, 1843 which provided for a railroad starting at the Vermont-Massachusetts state line and following the Connecticut and Passumpsic River valleys to the Vermont-Canada line at Newport or Derby. Nothing was done with this charter.

Rather than amend the original charter again, it was decided to get a new one and in November, 1845 another charter was granted by the legislature. This charter permitted the promoters to divide the company into two companies, making White River Jct., Vermont, the point of division, the northern company retaining the corporate name—Connecticut and Passumpsic Rivers Railroad, and all sums raised for building of the line. The organization of the new company was completed on January 15, 1846 and in the fall of the same year, the work of construction was commenced.

The promoters of the Vermont Central and the Boston, Concord & Montreal Railroads opposed the construction of the Connecticut and Passumpsic Rivers line. Numerous articles were published by newspapers friendly to those interests stating that the new road would never get beyond Wells River and that if built, it would never pay expenses. There was some question on which side of the Connecticut River the road would be built but certain laws passed by the New Hampshire legislature about this time proved a great hindrance to railroad building and these were in part responsible for the entire line being built in Vermont.

The preliminary surveys were partly paid for by the State of Vermont. The first contract was let from Fairlee Mountain to the mouth of Wait's River at Bradford and on September 7, 1846, the work was started by the contractor, E. Gilmore & Co. At that time the Northern R. R. had not been completed to Franklin, N. H. and some consideration was being given to its extension to Orford, N. H. or Fairlee, Vt., there connecting with the Connecticut and Passumpsic Rivers R. R. At any rate, it was not considered any advantage to get much done until connecting roads were built and the first annual report states that connecting roads were being contacted to see what working arrangements could be made for interchange of traffic.

From the time the road was started, the objective was Montreal. The second annual report tells of plans to connect with the St. Lawrence & Atlantic R. R. at Derby, although that road had just been started. This report also stated the contracts had been awarded for construction to Wells River. Construction was on a pay-as-you-go basis with portions of the road built as subscriptions were paid in. By 1847 arrangements had been made for joint facilities with the Northern R. R. at White River Jct. As the Northern R. R. crossed the Connecticut River below the mouth of the White River considerable filling had to be done and the Passumpsic road had to stand the whole expense of bridging the White River.

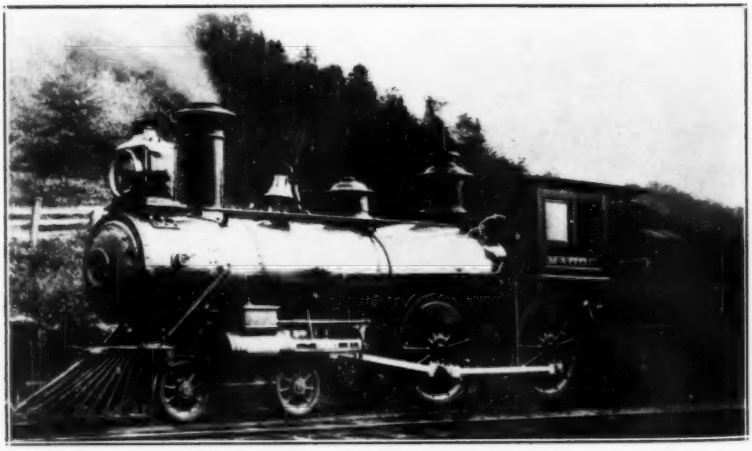
The subscriptions to build to Wells River totalled $975,000.00. A strong effort was made to locate the first 22 miles on the east side of the Connecticut River but to no avail. A printed manifesto urged that such a plan would save from $100,000. to $150,000. and pointed out that towns on the New Hampshire side had already pledged $100,000. toward building the road. An interesting sidelight on the great flood of 1927 appears in the second objection to building on the Vermont side, "it necessitates its construction of a very expensive bridge across the White River at its mouth—a most unsafe position for a bridge as all acquainted with the habits of that river during a spring freshet well know."

The ledge at Ingalls Hill between Newbury and Wells River was the most difficult natural obstacle to overcome. Contractors who had had experience on other railroads were favored. Rock cuts were made and bridges erected by sub-contractors long before the rails were laid. Nearly all the laborers were Irishmen recruited for the purpose. They came from different parts of Ireland and were sure to fight at every meeting. On Sept. 27, 1847, a riot broke out at Ingalls Hill during which a foreman, one Michael Kelly, was murdered. After that, particular care was taken to avoid factional strife by spacing the gangs.

The first rails were laid at Norwich, Vt. late in July, 1848, being transported by team from Lebanon, N. H., on the Northern R. R., six miles away. About ten miles of track were laid prior to the completion of the bridge over the White River. The reason for this was that the road wanted to reach Wells River before the ground froze. The first locomotive crossed the White River bridge on Sept. 20, 1848 and on Oct. 10th, the road was opened from White River Jct. to Bradford, a distance of 28.44 miles.

Business was far better than expected and the work went on rapidly. The road was opened for passenger traffic to Wells River, 12.08 miles further on Nov. 6, 1848 and for freight traffic on Nov. 9th. In the meantime the survey to the Canadian line had been completed. The total cost to Wells River was $1,149,626.77, about $175,000. more than the amount subscribed. This additional cost was due to the White River bridge and changes in grading necessitated by the connection with the Northern R. R. at White River Jct. By the fall of 1849, the Vermont Central was completed from Montreal to Windsor and considerable traffic was handled to and from that road.

C. & P. R. R. R. "Alden Speare", C. & P. Shops, 1884



B. & M. "Magog," C. & P. Shops, 1886.

A meeting was held in St. Johnsbury on Nov. 14, 1849 and it was voted to complete the road to that place. A committee was chosen to solicit subscriptions and bonds to the amount of $500,000. were sold at par to cover the cost of this portion of the road. In December the contracts for grading and masonry were awarded and on Sept. 9, 1850 the work of laying the rails north of Wells River was started. McIndoes was reached by mid-October and on January 23, 1851 the work was completed to St. Johnsbury at a cost of $518,263.00, only about $20,000. over the original estimate. The year 1850 saw the first real heavy flood loss and the road expended $8000. for washed away embankments. The Connecticut River was at its highest stage in sixty years.

About the time that the road reached St. Johnsbury the inhabitants of the villages to the north held a series of meetings to foster interest in the extension of the road to the Canadian line. The greatest interest was at Stanstead, P. Q., and on Jan. 21, 1851, the *Stanstead Journal* called a joint meeting of the residents at Orleans and Sherbrooke Counties to discuss the railroad situation. These people were anxious to get a direct Boston connection and there had already been several attempts to get the Atlantic & St. Lawrence R. R., projected from Portland, to connect with the St. Lawrence & Atlantic R. R., projected from Montreal, to meet in the vicinity of Charleston, Vt. Other parties in Portland and Montreal favored a meeting place at Coaticook, P. Q.

As a result of these activities several roads were chartered which never got beyond the charter stage. One of these, backed by the citizens of Danville, Vt., was chartered to build a six mile line to connect with the Connecticut and Passumpsic Rivers R. R. at Joe's Brook. Another was granted permission to build a line from Derby to Swanton. This latter charter was of some concern to the Connecticut & Passumpsic Rivers R. R. interests because it was felt that if this line were built connecting with the St. Lawrence & Atlantic at Derby, considerable traffic might be diverted through Portland to Boston at reduced rates. The Vermont legislature was roundly censured for granting this charter and for giving the St. Lawrence & Atlantic permission to choose its own line from Island Pond northwards. About a year later the legislature authorized the Connecticut & Passumpsic Rivers R. R. to connect with the St. Lawrence & Atlantic wherever they chose and, at the same time, forbade the latter road to transport freight to or from Boston for less than the rate charged by the C. & P. R. R. R. and its connections.

In 1851 the motive power of the road consisted of three passenger and two freight locomotives of 20 tons each and the little second hand "Clyde" of ten tons bought from the contractors who built the road. The rest of the rolling stock consisted of 6 passenger cars, 4 baggage cars, 51 box cars and 21 other cars. The last link in the through line to Hartford, Conn., the Vermont Valley R. R. had just been completed and business was so good that more equipment was needed. Accordingly two more locomotives were ordered, the "Dartmouth," named for Dartmouth College at Hanover, N. H. and the "Addison Gilmore," named for a prominent director and great worker who had recently passed away.

In December, 1851, the first wreck of any consequence occurred when an eight car train hauled by the locomotive "Caledonia" struck a washout near North Thetford. The engineer and fireman were killed and the property loss was around $10,000. Among the operating regulations at this time was one directing conductors not to run after dark where rivers or streams were liable to be swollen.

Early in 1852 the Atlantic & St. Lawrence decided to proceed by way of Island Pond and Coaticook to the great dissatisfaction of the people of Stanstead and vicinity. It was thought that the completion of this line to Montreal would take traffic away from the other roads and the Passumpsic directors decided, therefore, to push on as quickly as possible. They voted to extend their road to Derby Line just as soon as the necessary $600,000 could be obtained. The $75,000 raised by the citizens of Stanstead for the Atlantic & St. Lawrence was forfeited when the location of that road was changed and now the Stanstead folks were solidly behind the extension of the Passumpsic road.

About this time considerable litigation arose over a situation at Wells River between the Connecticut and Passumpsic Rivers R. R. and the Boston, Concord & Montreal R. R. The strife was over the White Mountain traffic. One company employed a small army of men to construct a dump west of the Wells River-Woodsville bridge, while the rival railroad had a gang just as busily engaged in digging it away. The rivalry continued on both sides of the Connecticut River south of Wells River and in 1853 the B. C. & M. R. R. ran a stage from their depot at Haverill, N. H. across the river to Newbury, Vt. and carried passengers from the latter town to Concord, N. H. for less than the C. & P. R. R. R. charged from their station to Newbury.

The B. C. & M. also laid a highway under their bridge from Woodsville, N. H. to Wells River, Vt., so as to get all the passengers they could from the Vermont side. To make matters worse, the B. C. & M. built this highway over land owned by the C. & P. R. R. R. The relations of the C. & P. R. R. R. with the White Mountains R. R. and the Northern R. R. were always friendly and after a time the B. C. & M. made an amicable arrangement with the other roads. A connection was made at Woodsville-Wells River between the B. C. & M. and the C. & P. R. R. R. Aug. 6, 1853 on the latter's own terms.

In the winter and spring of 1852-53 many meetings were held in the towns between St. Johnsbury and Stanstead. Every meeting was favorable and promised right-of-way and financial support. On Aug. 20, 1853, the Stanstead, Shefford & Chambly R. R. was chartered by the Canadian Parliament to form a connecting link to Montreal. It was expected to be completed by the time the Connecticut & Passumpsic Rivers R. R. reached the Vermont-Canada boundary.

Another locomotive was added to the roster in 1853—the "Chicopee," which was borrowed from the Connecticut River R. R. The first locomotive built in Vermont—the "Enterprise"—was purchased from Arthur Latham of White River Jct.

A meeting of stockholders held at White River Jct., Jan. 26, 1854, instructed the directors to obtain proposals for immediate construction

north of St. Johnsbury. In the meantime, the Atlantic & St. Lawrence interests were trying to force a connection with the Passumpsic at Island Pond. These interests had been instrumental in obtaining a charter for the Missisquoi & Island Pond R. R. to extend from Island Pond towards Montreal by way of Derby in order to stifle the Stanstead, Shefford & Chambly R. R. and control all traffic to Montreal and Quebec from the south.

Due to the demand of his private affairs, Erastus Fairbanks in 1854 declined re-election as president of the road. He was succeeded by Henry Keyes, who had been a director since the road started and had devoted the greater part of his time to the enterprise. Mr. Keyes continued as president until 1870.

In the spring of 1855, the Atlantic & St. Lawrence R. R. obtained a charter to build a line from Island Pond to St. Johnsbury but with the following proviso:

> "Provided, however, that this Act shall not take effect until one year after its passage; and if at any time within one year after the passage of this Act, the C. & P. R. R. shall raise by subscription or otherwise, in good faith, means sufficient to build their road to its northern terminus at the north line of this State in the Town of Derby, and in good faith put the same under contract, then, and in that case, this Act shall be null and void."

Thus it will be seen that the Connecticut & Passumpsic Rivers R. R. was forced to start their extension in spite of the fact that business had fallen off and the state of the money market made new financing very difficult. The management had made an enviable record, however, having paid good dividends and only such stock was issued as was necessary to finish building the road. By January, 1856, enough stock had been sold to provide the necessary funds and grading started April 19th on the thirty mile section to Barton. The rails to St. Johnsbury Centre were laid June 13, 1857, to Lyndon in August and reached Barton the latter part of October.

Few railroads were constructed on a sounder basis than the Passumpsic but due to the stringency of the money market and local conditions it became necessary to ask stockholders to subscribe to additional stock on a pro rata basis. To protect the bondholders, however, it was decided to transfer the road to trustees and on Nov. 29, 1856, they took possession of the road from White River Jct. to St. Johnsbury. Under the trustees a plan was worked out whereby the bonds were mostly extended and on Oct. 16, 1857 the road was returned to the corporation.

On Saturday, June 5, 1857, the road suffered a severe loss when the bridge over the Passumpsic River at St. Johnsbury was destroyed by fire. It is interesting to note that traffic was interrupted but three working days. President Fairbanks had never allowed any work to be done on Sunday, but by Thursday following the fire, trains were using the new bridge.

The panic of 1857 severely affected the business of the road although its income steadily increased. Some of the subscribers, however, failed to pay their installments on the stock as promised and the directors, rather than increase the debt of the road suspended further

work in October, 1858. Public meetings were held and resolutions passed pledging to the corporation the arrears due on subscriptions and assuring the patronage of the communities.

By this time the Stanstead, Shefford & Chambly had completed its first fifteen miles from Farnumsville to St. John, P. Q. and was on its way to Waterloo. This heartened the officials of the Passumpsic road whose traffic was entirely local until proper connections could be made. Every move to advance the road northward found energetic men in Stanstead and Compton working hard to complete the project.

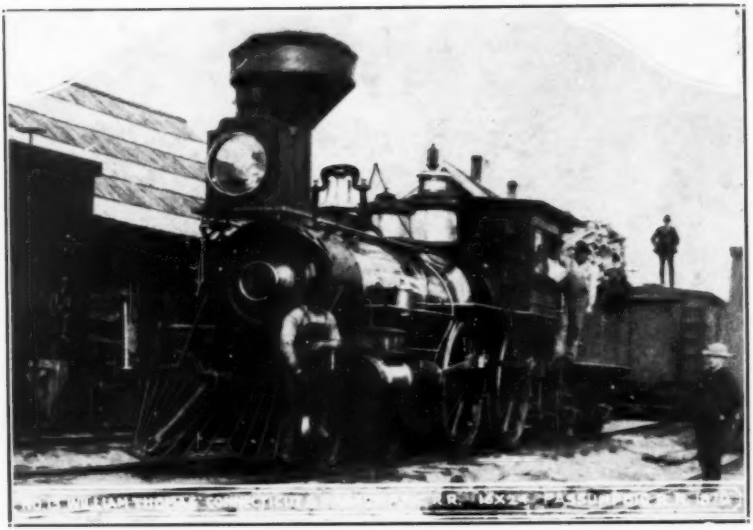
By September, 1859, sufficient funds were available to resume construction between Barton and Barton Landing (Orleans). It was agreed that the work should proceed no faster than funds received warranted. The S. S. & C. had reached Granby, P. Q. and the next year was to reach Stukely, 15 miles from Magog village.

On November 1, 1861 construction stopped again due to funds becoming exhausted but in less than a year work was resumed and the road was opened to Newport for passenger traffic on October 5th and for freight traffic on October 12th, 1863. In the meantime, the Massawippi Valley R. R. had been chartered (June 9, 1862) and it was expected that a connection of this road and the S. S. & C. would be made by building nine miles of track easterly from Magog.

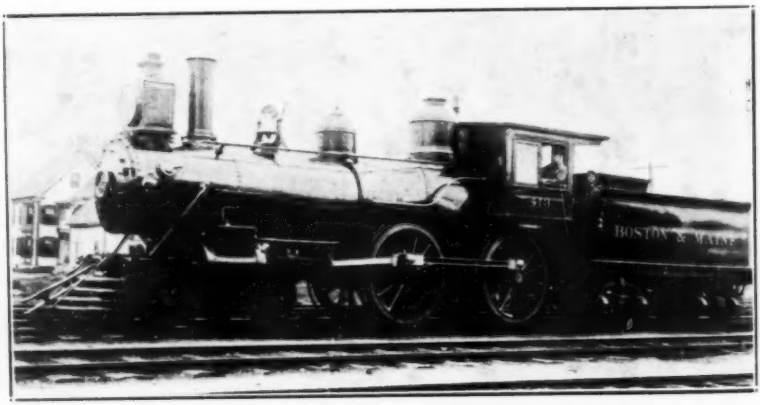
As the S. S. & C. approached completion, it readily appeared that this road with its Passumpsic connection would be highly competitive to the Vermont Central. On September 25, 1863, the Vermont Central secured control of the road and this definitely killed any hope of extension to Derby or a connection with the Massawippi Valley. Control of the S. S. & C. also gave the Vermont Central control of the bridge at St. Johns, P. Q.

In 1859 the first locomotive built in the company's shops—the "Magog" was completed at a cost of $7800.00. In 1864 the "Massawippi" was completed. On March 21, 1866, the shops at St. Johnsbury were destroyed by fire and tools, machinery and supplies, together with the locomotives "Caledonia" and "A. Gilmore" were a total loss. The monetary loss was estimated at $75,000. with only $25,000. insurance. To replace the burned locomotives, the "Union" and "Addison Gilmore" were purchased from the Manchester Locomotive Works in 1866 and two others, the "Passumpsic" and "Caledonia" were constructed in the new shops the following year, presumably from parts of the old "A. Gilmore" and "Caledonia." New locomotives and equipment were steadily added so that in 1870 the road had 15 locomotives and by 1872 owned 22.

With no prospect of securing a direct communication with Montreal and being determined to form a junction in some way with the great lines in Canada, efforts were made to raise enough money to start construction of the Massawippi Valley Railroad. In due time the money was raised and the road opened on July 1, 1870. It was immediately leased to the Passumpsic road. The Massawippi Valley Railway extended from the terminus of the Passumpsic road at the Canada line to the Grand Trunk (formerly the St. Lawrence & Atlantic) road at Lenoxville and



C. & P. R. R. R. "William Thomas." C. & P. Shops, 1869.



B. & M. #413 ex C. & P. "Orange." Manchester, 1887.

subsequently to Sherbrooke by means of a third rail on the broad gauge Grand Trunk. The completion of this line gave a direct route from Boston and New York to Quebec and eastern Canada. It proved of great importance to the Passumpsic R. R. and its southern connections but the Grand Trunk was not interested in an interchange of Montreal business.

The original aim and intent of securing a direct line to Montreal was never abandoned. To this end the Passumpsic directors assisted the Missisquoi & Clyde Rivers R. R. to the extent of $350,000. to enable them to complete their line from Richford, Vt. to Newport, Vt., thus bridging the gap between the Passumpic at Newport and the South Eastern Ry. which was headed from West Farnham, P. Q. towards Richford, Vt. The Passumpic also loaned about $60,000. to the South Eastern which agreed to lease and operate the Missiquoi & Clyde Rivers R. R.

The Richford-Newport line was opened July 10, 1873 and brought considerable business to the Passumpic R. R. but additional advances to the South Eastern so involved the Passumpsic road that it became advisable in March, 1875, to lease and operate the entire line. Due to its interest in through business, the Boston, Concord & Montreal R. R. was given an opportunity to share the benefits and responsibilities of the lease and this arrangement continued for some time. When it became apparent that the finances of the South Eastern were hopelessly involved, the B. C. & M. withdrew and the Passumpsic road operated it for a short period. In 1878 a new ten year contract for sole operation of the South Eastern by the Passumpsic road was signed. This, it was thought, would enable the South Eastern to complete its line from Sutton Jct. to Sorel, P. Q. It also secured a direct line to Montreal over the Montreal, Portland & Boston R. R.

Meanwhile, other interests secured the bonds of the South Eastern and the affairs of that company reached such a condition that the bondholders assumed control. The report of the directors of the Passumpsic R. R. for 1879 states—"The South Eastern Railway from which we expected so much years ago, and which has caused us so much loss and unpleasant controversy, has lately passed into other hands and is now being put into first-rate condition. Our relations with that road at the present time are of the most friendly nature, and we feel confident will continue both pleasant and advantageous."

The directors then obtained control of the Montreal, Portland & Boston R. R. because high charges by the Central Vermont and the Grand Trunk roads made through business unprofitable. Arrangements were made for the South Eastern to operate the entire line from Newport to Montreal. In 1882 the South Eastern went into bankruptcy and after its sale the Passumpsic ceased to operate it and the Montreal, Portland & Boston R. R. The Missisquoi & Clyde Rivers R. R. had been foreclosed two years previously and was reorganized as the Newport & Richford R. R., the stock of which was mostly owned by the Passumpsic R. R. It continued, however, to be leased to and operated by the reorganized South Eastern and this lease and operation continued until the South Eastern was taken over by the Canadian Pacific Ry. in the early 1890's.

During the fall of 1886, negotiations were entered into with the directors of the Boston & Lowell R. R. which finally culminated in the lease of the Passumpsic road to the Boston & Lowell R. R. for a period of 99 years from January 1, 1887. The lease was approved by the stockholders of both roads and on June 1, 1887, the Boston & Lowell R. R. took possession. In October, 1887, the Boston & Lowell was leased for 99 years to the Boston & Maine R. R. and the Passumpsic lease was assigned to the Boston & Maine R. R. In the spring of 1926, the Boston & Maine subleased the 64 miles from Wells River to Newport to the Canadian Pacific Ry. for thirty years.

The Connecticut & Passumpsic Rivers R. R. has but few grades. Starting from White River Jct., this road pursued a nearly due north course along the valley of the Connecticut River until it reached East Barnet where it emerged into the valley of the Passumpsic River and then ran through the meadows bordering that stream until near West Burke. From a point a short distance north of Lyndonville it rose at a rather sharp grade, fourteen miles to a turnout known as Summit. From here, and continuing north, it descended rapidly about an equal distance until near Barton Landing, where the grade again becomes easy and so continues to the Canadian Line.

Following as it does the valleys of two large rivers for a distance of about 80 miles, the Passumpsic R. R. encountered and crossed all the mountain streams that descended to the east to unite with the major waterways. This necessitated the erection and maintenance of more than a hundred bridges.

There were many interesting stories of the early days of the railroad. The St. Johnsbury "Caledonian" for Nov. 19, 1850 has this item quite prominently placed:

DESECRATION OF THE SABBATH

"We hear that workmen were busily engaged last Sabbath at several points upon the railroad below here. We do not know the names of the contractors of the sections where the work was done or that they authorized or countenanced it, but one thing we do know; there was no justifiable reason for the desecration of the Lord's day; and the act deserves, as it generally received, unqualified condemnation. The directors of the road, without exception, will regret the circumstance. The work was done by persons over whose acts they had no control."

"After the above brief article was in type, we received the following communication upon the subject."

Editor of the Caledonian.

Sir:

As the responsible agent of the C. & P. R. R., I regard it as due alike to the community and to the corporation to say that the prosecution of the contractor's work on the two last Sabbaths was contrary to the wishes of the Directors and uncalled for in view of the exigencies of the case. I sincerely regret the occurrence of what has outraged the moral feelings of the community and disturbed the relations which have happily existed between these sub-contractors and the company.

ERASTUS FAIRBANKS

St. Johnsbury, Vt.
Nov. 11, 1850.

On July 28, 1854 a passenger train struck two cows near Ryegate, derailing the train, injuring several passengers and damaging some

equipment. The owner of the cows, a farmer named Thomas Nelson, had allowed them to roam on the right-of-way several times before and the railroad promptly claimed damages. The case was brought to the Caledonia County Court and judgment was given against the farmer. The jury awarded $159.00 to the railroad company. This was an important decision.

Wood was used for fuel until 1882. The road bought its own woodlots and built sheds thereon. Switch lamps were not used until 1885. The first passenger cars were painted bright yellow and had flat roofs like the freight cars. Sperm candles were used at first for lighting the cars, giving way to oil lamps later. They gave just about light enough to keep passengers with good eyesight from falling over the seats, but it really did not matter much as few trains ran after dark.

A single wire handled all telegraph business along the line until about 1870. It was located along the highway. The advantage of handling trains by telegraph was seen about Civil War times and then the line was moved alongside the railroad. Then ticket offices became telegraph offices.

During the earlier years there were two passenger trains each way. During the hard times from 1854 to 1865 they were consolidated into one. In the spring of 1874, the "Air Line" trains from Montreal to Boston were inaugurated. Along the river this name still stands notwithstanding other names given the train later. The first Pullman cars were used in 1872 and for a few years the Passumpsic R. R. had a parlor car of its own.

No account of this road would be complete without mention of its capable Superintendent—Col. Harley E. Folsom. His entrance upon the duties of this office were most peculiar. It seems that President Emmons Raymond of Boston had received reports of strange goings on. He came up from Boston, found discipline lacking and things run in a pretty free and easy way. He had noted young Folsom always busily engaged with his work and calling him over told him to go upstairs and sit down in the Superintendents office until he told him to come down. For fifty-five years he "sat" in that office and capably directed the affairs of the company. At the time of his retirement he was the oldest railroad officer in service in the country and the best known throughout New England.

He dispensed justice with a fair but firm hand. His knowledge of the men and their families was made to apply to the individual cases and many a man, called "on the carpet" entered defiantly only to come out almost moved to tears by the consideration given him when he was sure his railroad days were over.

Boomers were unknown. Positions were found for sons of employees who showed an aptitude for any branch of the service. Honored by various offices of trust and responsibility in Lyndonville, Col. Folsom might have risen to greater heights in the business world, had he desired to leave his native town. His love for his native state, the railroad and its employees were far too great and there seems to be no question but that the success of the Passumpsic road in later years was due to the many qualifications of this grand old man.

CONNECTICUT & PASSUMPSIC RIVERS R. R. LOCOMOTIVES

	Clyde	Locks & Canal	1841	Formerly "Plymouth" from Western R. R. Sold—1865				
1	Caledonia	Hinkley & Drury #188	1848	4-4-0	16x20"			
	Rebuilt	C & P R. R. R.	1867			Sc 1880		
1	Hubbard Hastings	Manchester #1267	1886	4-4-0	15x24"	B&M #414		
2	Green Mt. Boy	Hinkley & Drury #200	1848	4-4-0	16x20"	Sc 1880		
2	The Boy	C & P R. R. R.	1880	4-4-0	14x24"	B&M #415		
3	Ox Bow	Hinkley & Drury #206	1848	4-4-0	16x20"	Renamed		
	Orange					Sc. 1884		
3	Alden Speare	C & P R. R. R.	1884	4-4-0	16x24"	B&M #416		
4	Orleans	Hinkley & Drury #210	1848	4-4-0	15x20"	Sc. 1883		
4	Orleans	C & P R. R. R.	1883	4-4-0	16x24"	B&M #417		
5	Dartmouth	Taunton L W #64	1851	4-4-0	15x20"	Sc. 1879		
5	Dartmouth	C & P R. R. R.	1879	4-4-0	16x24"	B&M #418		
	Addison Gilmore	Amoskeag #19	1852	4-4-0	16x20"			
	Rebuilt	C & P R. R. R.	1867	Renamed—Passumpsic				
6	Enterprise	Latham #1	1853	4-4-0	?	Sc 1877		
6	Enterprise	C & P R. R. R.	1878	4-4-0	1624"	B&M #419		
	Chicopee	Springfield L. W.	1853	4-4-0	Loaned from Ct. River R. R. —1854			
7	Magog	C & P R. R. R.	1859	4-4-0	?	Sc 1884		
7	Magog	C & P R. R. R.	1886	4-4-0	16x24"	B&M #420		
8	Massawippi	C & P R. R. R.	1865	4-4-0	?	Sc 1883		
8	Massawippi	C & P R. R. R.	1883	4-4-0	16x24"	B&M #421		
9	Union	Manchester #80	1866	4-4-0	15x24"	Sc 1887		
10	Addison Gilmore	Manchester #87	1866	4-4-0	14x22"	B&M #423		
11	Passumpsic	C & P R. R. R.	1867	4-4-0	15x24"	B&M #424		
12	Josiah Stickney	C & P R. R. R.	1868	4-4-0	16x24"	B&M #425		
13	William Thomas	C & P R. R. R.	1869	4-4-0	16x24"	B&M #426		
14	Henry Keyes	C & P R. R. R.	1870	4-4-0	16x24"	B&M #427		
15	Emmons Raymond	C & P R. R. R.	1870	4-4-0	16x24"	B&M #428		
16	Pony	C & P R. R. R.	1873	0-4-0	?	B&M #429		
17	E. Cleveland	C & P R. R. R.	1871	4-4-0	16x24"	B&M #430		
18	B. P. Cheney	C & P R. R. R.	1871	4-4-0	17x24"	B&M #431		
19	Albert Knight	C & P R. R. R.	1871	4-4-0	17x24"	B&M sold		
20	Thomas Upham	C & P R. R. R.	1872	4-4-0	16x24"	B&M #433		
21	Gen'l Chase	Manchester #430	1871	4-4-0	16½x24"	B&M #434		
22	Col. Pomeroy	Manchester #431	1871	4-4-0	16½x24"	B&M #435		
23	H. A. Alden	C & P R. R. R.	1873	4-4-0	16x24"	B&M #436		
24	F. M. Weld	C & P R. R. R.	1874	4-4-0	16x24"	B&M #437		
25	Newport	Rhode Island #416	1872	4-4-0	16x24"	From SE Ry. Sold to Woodstock Ry. Renamed "A. G. Dewey."		
25	Amos Barnes	Manchester	1874	4-4-0	16x24	From Montpelier & Wells River R. R. "Groton". B&M #438		
26	Col. Foster	Rhode Island #311	1871	4-4-0	14x24"	Received from and returned to the South Eastern Ry.		
26	S. S. Thompson	Manchester	1875	4-4-0	15x24"	Received from Woodstock Ry. as "A. G. Dewey" in exchange for "Newport." B&M #439		
27	Montreal	Rhode Island #417	1872	4-4-0	16x24"	B&M #440 Received from S. E. Ry.		
28	L. Robinson	Canadian L. W.	1879	4-4-0	16x24"	B&M #441		
29	W. K. Blodgett	Rhode Island #1287	1883	4-4-0	17x24"	B&M #442		
30	Orange	Manchester #1331	1887	4-4-0	17x24"	B&M #413		

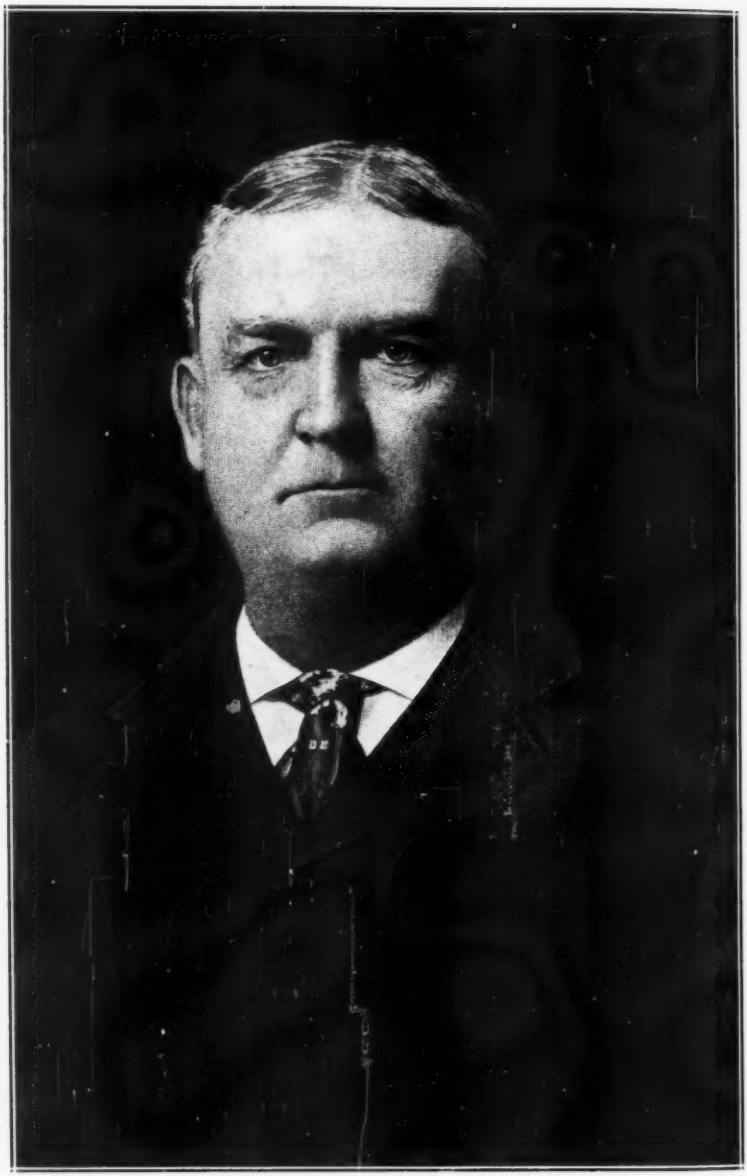


Photo by courtesy of Charles W. Goodyear, Jr.

CHARLES W. GOODYEAR.
Born October 15, 1846. Died April 16, 1911.

The Buffalo and Susquehanna and Its Subsidiaries

By Capt. W. W. Robinson.

The formation of this system was the achievement of two brothers, the sons of a country physician of Cortland County, New York. While the boys were still young the father removed his medical practice to North Collins, Erie County, New York, the children receiving their early education in the local village school.

Frank Henry Goodyear was born at Groton, N. Y., March 17, 1849 and after finishing school was employed in most all capacities by Robert Looney who operated a saw mill, general store, dealt in feeds, grain and produce and furnished fuel for the wood burning locomotives of what is now the New York Central Railroad. He is said to have amassed quite a fortune from these enterprises. The place was a hamlet known in those days as Looneyville, now Wende. Frank married Mr. Looney's daughter Josephine in 1871 and the following year they settled in Buffalo where Mr. Goodyear went in business for himself dealing in lumber, coal and wood. Along in the early eighties he retired from business, financially independent, with the intention of devoting his time entirely to travel.

Charles Waterhouse Goodyear was born at Cortland, N. Y., October 15, 1846. Having attended the academies at Cortland, East Aurora and Wyoming, he went to Buffalo in 1868 and entered himself as a student in a law office, being admitted to the bar in 1871. Three years later he became assistant district attorney of Erie County and shortly thereafter a vacancy occurring in the office of district attorney, he was appointed to that position. January 1, 1882 Mr. Goodyear became a member of the law firm of Bissell, Sicard and Goodyear, with an extensive corporation and financial practice. He continued that connection until 1887 when he gave up the practice of law to devote his entire time to a partnership with his brother Frank in the lumber and railroad business.

Tiring of a life of travel and inactivity Frank Goodyear's thoughts again turned to lumber. He knew that business and he knew where virgin timber existed. This was in 1885 and he bought a tract of 80,000 acres of forest land in Potter and McKean counties in Pennsylvania, erecting a saw mill at Freeman's Run, now Austin, Pa. The nearest shipping point was a depot named Keating Summit (village and post office in those days being known as Forest House) on the Western New York and Pennsylvania Railroad, nine miles from the mill at Austin, and it was necessary to have transportation to that depot. Therefore Mr. Goodyear organized, with charter dated May 9, 1885, the Sinnemahoning Valley Railroad Company, which constructed a single track, standard gauge line, being completed to Austin in July 1885. During the construction and for a short time thereafter the company used two locomotives which were leased from the Western New York and Pennsylvania, said to have been built by the New York Locomotive Works at Rome. They are not included in the appended locomotive roster. Following their return to the W. N. Y. & P., the Sinnemahoning Valley purchased

in 1887 two second-hand engines, one from the Pennsylvania Railroad and the other from the Boston, Hoosac Tunnel & Western.

The officers and directors of the Sinnemahoning Valley were Frank H. Goodyear, Chairman of the Board, Marlin E. Olmsted, a prominent attorney of Harrisburg, President, Charles W. Goodyear, Vice President and General Manager, Edgar O. Cheney, Treasurer, Fred A. Lehr, Secretary, Frederick H. Freeborn, Auditor, Willis I. Lewis, an attorney of Coudersport, Hugh Hutchinson who was superintendent of the railroad, Patrick H. Farrell, in charge of lumbering operations, Daniel Collins, manager of the mills, and Nathan F. Metcalf, superintendent of the Goodyear lumbering operations. Upon completion of the railroad the general offices were moved from Forest House to Austin.

In 1886 the railroad was extended southerly four miles to Costello, where the firm of F. H. and C. W. Goodyear, a partnership, had erected saw mills and where was in operation the largest leather tannery in the United States, conducted by the Costello family from whom the village took its name. The Goodyears sold all their hemlock bark to the Costellos.

The annual report of 1890 shows mileage of 12½, locomotives 2, passenger cars 1, baggage, mail and express cars 1, flat cars 150, employees 56.

Commencing in 1891, under the following corporate names, the line of the Sinnemahoning Valley Railroad was extended from Costello to Ansonia, completed in October 1893, where a connection was made with the Fall Brook Railway: Susquehanna Railroad Company, incorporated August 3, 1891, from Costello to Wharton; Cherry Springs Railroad Company, Inc. July 14, 1893, Wharton to Galeton; Coudersport and Wellsboro Railroad Company, Inc. January 2, 1893, from Galeton to Ansonia.

During 1894 there was also constructed a branch line, thirteen miles in length, extending from a station called Cross Fork Junction to Cross Fork, Pa., under the charter of the Cross Fork Railroad Company, dated April 12, 1893.

October 1, 1893 the various companies were consolidated and merged into one company to be known as the Buffalo and Susquehanna Railroad Company. The first annual report of the new company covering the period from October 1, 1893 to June 30, 1895, 21 months, shows that the line was equipped with 16 locomotives, ten of them being of the consolidation type built by Baldwin, four ten-wheel engines, three having been built by Baldwin and one by Brooks, one eight-wheel engine built by the Pennsylvania Railroad Company, and one Shay-geared engine built by Lima. Cost of the road and equipment to that date $2,200,000.

In September 1895 the firm of F. H. and C. W. Goodyear purchased for $110,000 the Wellsville, Coudersport and Pine Creek Railroad (original charter November 14, 1881) extending from Wellsville, N. Y., to Perryville, Pa., (now Hickox) following the Genessee River, and April 1, 1901 leased it to the Buffalo and Susquehanna Railroad Company. This line was constructed under a revived charter from the state of New York from Wellsville to the Pennsylvania state line at Genessee, ten miles, and was completed in the autumn of 1890. In 1891 the line was extended

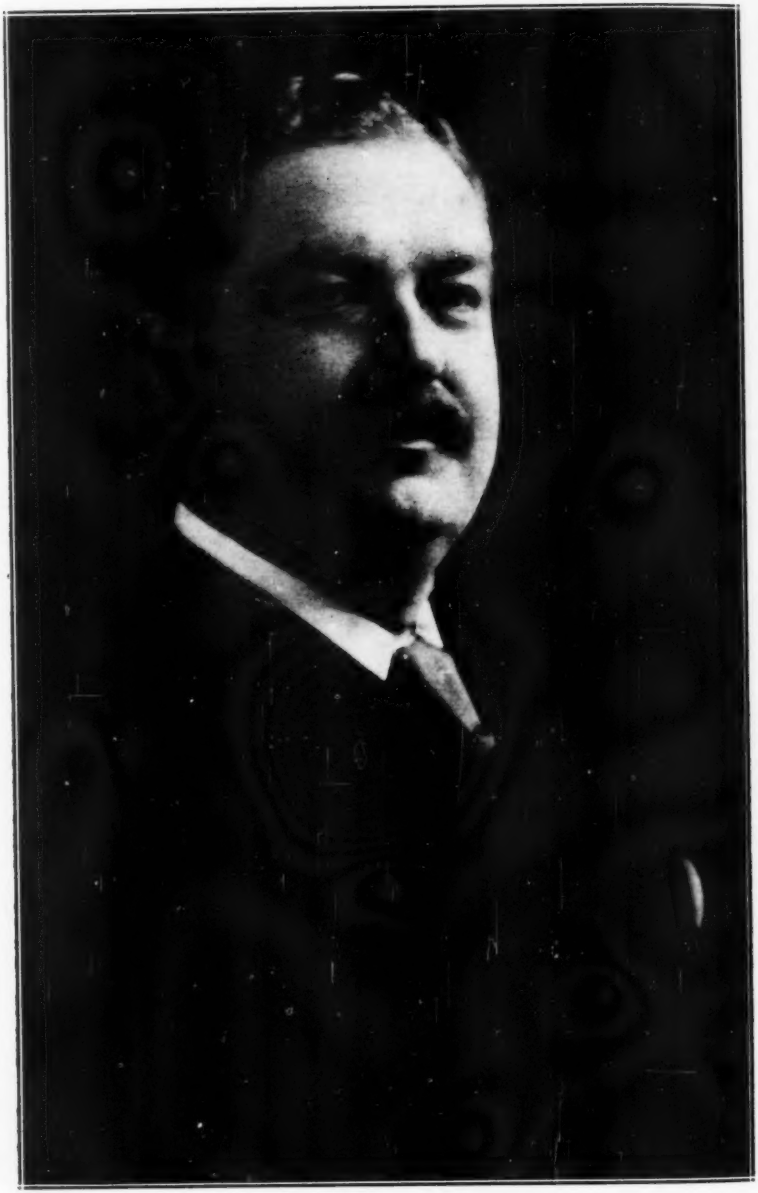


Photo by courtesy of Henry H. Gardiner.

FRANK H. GOODYEAR.
Born March 17, 1849. Died May 13, 1907.

southerly to Perryville, 1.6 miles, under a Pennsylvania charter issued in the name of the State Line Railroad Company, incorporated November 10, 1890. In this deal the B. & S. secured one locomotive which the W. C. & P. C. had purchased, second-hand from the Philadelphia, Wilmington and Baltimore Railroad Company.

In 1895 the Buffalo and Susquehanna, under its own charter, constructed a single track railroad from Galeton to Perryville, a distance of 25 miles, and on January 1, 1896 the new line of 37 miles was opened from Galeton to Wellsville.

At this time, 1895, the Buffalo and Susquehanna had direct connections with the New York, Lake Erie and Western at Wellsville, the New York and Pennsylvania at Genessee, the Coudersport and Port Allegheny at Newfield Junction, the Western New York and Pennsylvania at Keating Summit, the Fall Brook at Ansonia and the Addison and Pennsylvainia at Galeton. Length of entire road 75.12 miles. Net profit for the year $34,705.

The annual report for the year ending June 30, 1896 shows the cost of the road and equipment as $2,995,874, net profit $70,485, 16 locomotives, 256 flat cars, 500 gondola cars, box cars not mentioned. Additional officers were Henry C. Underhill as General Freight and Passenger Agent, John W. Trounce as Car Accountant and Charles E. Davis as Division Freight and Passenger Agent. Mr. Davis had been superintendent of the W. C. & P. C. railroad.

The 1897 report shows the appointment of Will C. Park as superintendent, Henry Herden as chief engineer and David M. Newlands as engineer of maintenance of way. The net profit for that year was $140,708.

Early in 1898 the operating offices and mechanical department were moved from Austin to Galeton where the company had erected an up-to-date office building, passenger depot, freight house and large locomotive and car shops.

In that year the firm of F. H. and C. W. Goodyear acquired by purchase the Addison and Pennsylvania Railroad Company extending from Galeton to Addison, N. Y., which was merged into the Buffalo and Susquehanna April 1, 1901. A complete history of the A. & P. is included in this chapter. With this deal the B. & S. secured three locomotives which the A. & P. had purchased second-hand from the Erie, and also secured the services as superintendent of a most competent and efficient railroad man, William W. Atwood, whose life story will be told later on in this article. Mr. Park's title was changed to general superintendent.

In 1899 Michael J. McMahon* became Division Freight and Passenger Agent in place of Mr. Davis. The net profit for that year was $77,838.

The report for the year ending June 30, 1900 shows no changes of any consequence, with a net profit of $181,510.

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*Mr. McMahon later went to one of Mr. Goodyear's southern investments, the New Orleans Great Northern Railroad and is now vice president of the Great Southern Lumber Company of Louisiana, a property of the Goodyear estate.

In 1901 George M. Sicard of Buffalo became purchasing agent, Anson Conger Goodyear,* son of Charles W., became assistant general superintendent, and Henry H. Gardiner general freight and passenger agent. Report shows total mileage 172, including short lumbering branches, net profit $213,548.

About this time two branch lines were built, one known as the Potato Creek Railroad from Keating Summit to Betula, 15 miles, to reach the company's lumber mill at Norwich. Another was an extension of the B. & S. line from Wharton to Bailey Run to get the timber out of that creek region, and upon the completion of this latter, construction work was immediately started to extend it, under the charter of the Northern Susquehanna Railroad Company, incorporated January 31, 1900, (merged with the B. & S. April 1, 1901) from Bailey Run to a connection with the Philadelphia and Erie Railroad at Sinnemahoning. Then, under the charter of the Susquehanna and Southern Railroad Company (incorporated August 12, 1902 and merged into the B. & S. June 27, 1905) construction was completed from Sinnemahoning to a point ten miles south of DuBois in Jefferson County, with an 11½ mile branch from Medix Run. The purpose of this last extension was to reach the coal lands in Jefferson and Clearfield counties.

At the height of the Goodyear lumbering operations more lumber is said to have been produced along the lines of the B. & S. than in any similar area in America. As the timber became depleted the Goodyears looked around for other sources of revenue and traffic for the railroad. They decided upon the coal business and in 1903 purchased the property of the Clearfield Coal Company located at Tyler, which property was subsequently incorporated as the Buffalo and Susquehanna Coal and Coke Company. The latter company purchased additional lands from the Berwind and White Coal Mining Company near DuBois, also coal lands from Peale, Peacock and Kerr, ten miles south of DuBois, containing in all an estimated quantity of about 30,000,000 tons of coal. The Powhatan Coal and Coke Company was organized to take over part of the coal lands. Some 25,000 acres of timber lands in Clearfield and Cameron counties were acquired at this time, including a saw mill at Medix Run. In 1903 the Buffalo and Susquehanna Coal and Coke Company sold the lands previously purchased from Peale, Peacock and Kerr to the Buffalo and Susquehanna Iron Company, which company was at this time constructing its plant at Buffalo (completed in 1904), and the following year the land and plant at Tyler was sold to the same company. To replace the coal lands thus disposed of, the Buffalo and Susquehanna Coal and Coke Company made some additional purchases of coal lands, in Indiana and Armstrong counties, estimated to contain in all about 50,000,000 tons.

In extending the railroad southerly from below DuBois to reach the coal properties purchased in Indiana and Armstrong counties, the company ran into difficulties in trying to secure a right of way. Finally arrangements were made for trackage rights over the Indiana branch

* Mr. A. Conger Goodyear is now a resident of New York City.

Courtesy of Mr. George Rooth of Wellsville, N. Y., son of the first station agent of the Sinnemahoning Valley Railroad.

Locomotive, Sinnemahoning Valley the first No. 2.

of the Buffalo, Rochester and Pittsburgh from Stanley to Juneau, 16 miles, and then the B. & S. built south from Juneau to Sagamore, 23 miles, under the charters of the Southwest DuBois Railroad Company (incorporated June 5, 1905 and merged with the B. & S. February 11, 1907) and the Plumville Railroad Company (incorporated April 27, 1905 and merged into the B. & S. April 3, 1907).

The lumber business seems to have been carried on entirely under the names of the Goodyear Lumber Company and the Lackawanna Lumber Company, as subsidiaries of the B. & S. They had innumerable lines of rail extending into the valleys of every creek and brook off the line of the B. & S. railroad to bring the logs to the main line and the mills, and when the timber was exhausted the rails would be taken up and relaid in some other valley. As one travels through that country today he can plainly see the beds of these railways. The Lackawanna Lumber Company reported in 1902 forty miles of such railway and the Goodyear Lumber Company reported over one hundred miles of similar lines. These two companies had twelve or fifteen Shay geared locomotives built by Lima which were used in the timber operations. They were numbered in the B. & S. series and all repairs were made in the railroad shops, but inasmuch as they were never used in main line or yard service they have been omitted from the locomotive roster which accompanies this history.

The plant and iron furnaces of the Buffalo and Susquehanna Iron Company at South Buffalo covered one hundred acres, and to transport iron ore to it from Duluth and Superior over the Great Lakes there was organized the Buffalo and Susquehanna Steamship Company. The Goodyears then determined that they must have a rail line into Buffalo to connect with these two subsidiaries. They therefore incorporated, September 20, 1902, the Buffalo and Susquehanna Railway Company, to construct a single track road from Wellsville, N. Y., to Blaisdell, N. Y., with trackage rights over the Lake Shore and Michigan Southern from Blaisdell to South Buffalo, a total distance of 90 miles. Later it proved that this was the straw which broke the camel's back. This northern extension was completed in 1906 and effective July 1, 1907 the Buffalo and Susquehanna Railway Company leased the properties of the Buffalo and Susquehanna Railroad Company, all to be operated as the Buffalo and Susquehanna Railway.

The annual report for 1907 contains the following: "The Completed System. The plans which were announced in the year 1901, for the formation, with the Buffalo and Susquehanna Railroad Company's then existing line of railroad as a nucleus, of a new railroad system extending from Buffalo to the bituminous coal fields of Pennsylvania, have now been practically consummated. On June 29, 1907 the operating department assumed jurisdiction over the entire mileage of main line between Buffalo and Sagamore, together with the various branch lines, and hereafter the statements of revenues and expenses will cover the operations of the whole system. Arrangements have been closed with the New York Central for the use of their passenger terminal facilities in Buffalo. The Buffalo and Susquehanna railway will maintain its own

freight depot. The business to be interchanged with lake steamers will be handled over the Buffalo and Susquehanna Railway's own terminal property at South Buffalo."

The following extracts are taken from a pamphlet issued in 1907 when the securities of the Buffalo and Susquehanna Railway Company were placed on the market:

"The railway, through its lease for 999 years from June 29, 1907 of the Buffalo and Susquehanna Railroad Company, and through ownership of all the common capital stock of that corporation, now controls and operates a through line from Buffalo to Sagamore. By means of its branch lines, connections are made with all the important trunk lines in that region.

The main line may be regarded as two divisions: The Buffalo Division, extending from Buffalo to Ansonia, and the Susquehanna Division, extending from Addison to Sagamore. The Buffalo Division includes a branch from Springville Junction to Springville, and six miles of trackage rights acquired from the L. S. & M. S. Ry., between Buffalo and Blaisdell, adjoining South Buffalo.

The Susquehanna Division has several branches and spurs to mines and other industries, and it embraces 17 miles of trackage rights between Sykes and Juneau, secured from the B. R. & P. Ry.

The two divisions use in common five miles of road between Galeton and Gaines Junction.

Mileage: Buffalo Division, Buffalo to Ansonia, 140; Susquehanna Division, Addison to Sagamore, 191; branches and spurs, 47; grand total 378.

The Country Served. As a broad generalization, the country traversed by the Buffalo and Susquehanna railway may be said to lie in three rather distinct zones. The northern zone, comprising all the line in western New York from Buffalo to Wellsville, and also the Cowanesque Valley in Pennsylvania between Addison and Galeton, is essentially agricultural. The middle zone, which may be described as pre-eminently a timber belt, extends southward and westward from the northern boundary of Pennsylvania to the upper waters of the Susquehanna River. Beyond Sinnemahoning, where the Buffalo and Susquehanna road intersects the Philadelphia and Erie Division of the Pennsylvania system, comes the coal region of Clearfield, Jefferson, Indiana, Cambria and Armstrong counties, commonly known as the Clearfield district. The line of the Buffalo and Susquehanna crosses the summit of the Alleghenies through a low pass at Sabula, a short distance east of the village of Du Bois.

Description of Line. In its physical construction the Buffalo and Susquehanna railway is in accordance with the best modern standards. Upon the completion of certain changes in Potter County it will have much lighter grades than any other line from the coal fields to Buffalo. Solid earth embankments, steel bridges and substantial concrete arches have been used throughout the construction of the new line. All new track is laid with steel rails weighing 85 lbs. to the yard, and most of the older line carries 80 and 85 pound rail. All of the important railroad

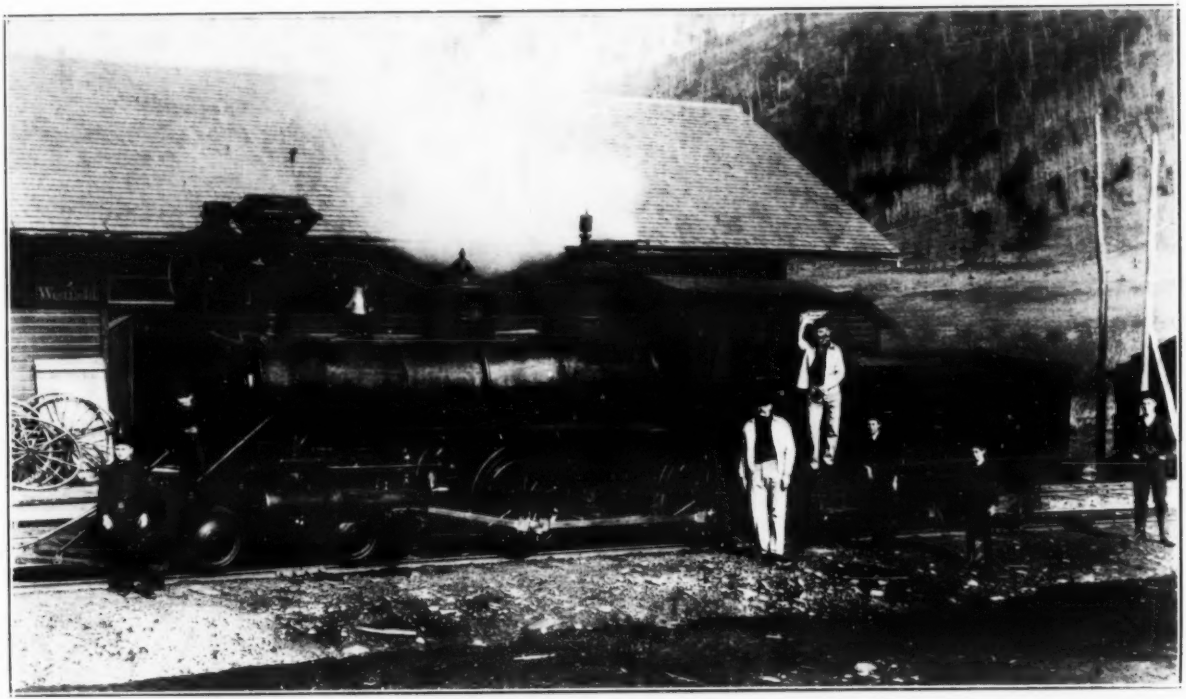


Photo by courtesy of Mrs. Minnie Steenburg of Westfield, Penna.

Addison & Pennsylvania Railway; formerly Addison & Northern Pennsylvania Ry. Loco. No. either 3 or 4. Taken at Westfield, Pa., about 1888. Hinkley Locomotive Co., Boston, 1882, purchased new. Shop No. 5882 or 5887 or 5892 or 5897. Narrow gauge 3 ft.
Standing in front of cab, Engineer Frederick Pomeroy who was killed in a head-on collision on the road Sept. 21, 1904, near Nichols, N. Y. Standing in gangway, Fireman Benj. M. Steenburg, who died in 1935 at Westfield, Pa.

crossings are above or below grade. Passenger and freight stations and water stations have been built where needed. The company's shops, located at Galeton, are adequate for its requirements, with facilities for light running repairs at Buffalo, DuBois and some other points. The company has on Buffalo harbor, at South Buffalo, a terminal property of 52 acres, in addition to other terminal ground for freight yards, round house and other necessary buildings. The terminal on Lake Erie has a deep water frontage of about three-fifths of a mile available for the largest lake steamships.

For the major part of its freight the railway will rely on the coal and coke developed on its line. At the same time lumber will continue to contribute an important tonnage, while the many industries, such as tanneries, iron works, cheese factories and other manufactories situated on the line, are steadily increasing their quota.

Interests closely affiliated with the Buffalo and Susquehanna railway organized the Buffalo and Susquehanna Coal and Coke Company and the Powhatan Coal and Coke Company. These companies have acquired at various times since 1901 in the Clearfield district 20,341 acres of bituminous coal lands.

North of the coal regions in Pennsylvania the Buffalo and Susquehanna traverses Potter, Cameron and Elk counties. In this territory lumbering is the principal industry. Five mammoth saw mills and many of lesser size are in operation on the line. Hemlock is the timber of chief importance, but much pine and hard woods are cut. The sawmills are supplemented by numerous concerns engaged in making staves, headings and other forest products.

In the forest industries of this part of Pennsylvania the Goodyear Lumber Company is a pioneer. Its operations are conducted on a mammoth scale. From modest beginnings the company has grown to a concern of $6,000,000 capitalization doing a business of 200,000,000 feet of lumber per annum. The Goodyear Lumber Company owns in the vicinity of Galeton, Austin, Medix and other towns 117 miles of standard gauge tram railroads fully equipped with the latest improved locomotives, log loading machines and steel logging cars. Of the sawmills of the largest capacity on the B. & S. railway the leader in daily production is situated at Galeton on the head waters of Pine Creek, the northern affluent of the west branch of the Susquehanna River, where the Goodyear Lumber Company owns a sawmill that turns out 350,000 feet of hemlock lumber per day. The company's Austin mill turns out 270,000 feet per day, the Asaph mill 150,000 feet and the Medix mill a like amount.

Miscellaneous manufacturers of forest products at Galeton, Brookland, Corbett, Austin and Keating Summit. The Emporium Lumber Company has several mills at different points engaged in the hardwood industry, all located on the line of the B. & S. railway.

Tanning industry. Naturally and closely associated with the lumber business is the tanning industry. Hemlock bark is in constant demand for tanning material. Subsidiary corporations of the Central Leather Company and other corporations have eight tanneries in active

Addison & Pennsylvania Locomotive Co., Boston, 1882, purchased new. Shop No. 5882 or 5887 or 5892 or 5897. Narrow gauge 3 ft. Standing in front of cab, Engineer Frederick Pomeroy who was killed in a head-on collision on the line on Sept. 23, 1904, near Nichols, N. Y. Standing in gangway, Fireman Benj. M. Steenburg, who died in 1935 at Westfield, Pa.

operation in B. & S. territory. The tannery at Costello is said to be the largest in the world. Others are at Galeton, Manhattan, Westfield, Elkland and Wellsville. The tannery at Costello uses 30,000 cords of hemlock bark annually and produces daily 1200 sides of hemlock sole leather. The Pine Creek tannery at Galeton consumes 23,000 cords of bark per annum and turns out 900 sides of sole leather daily.

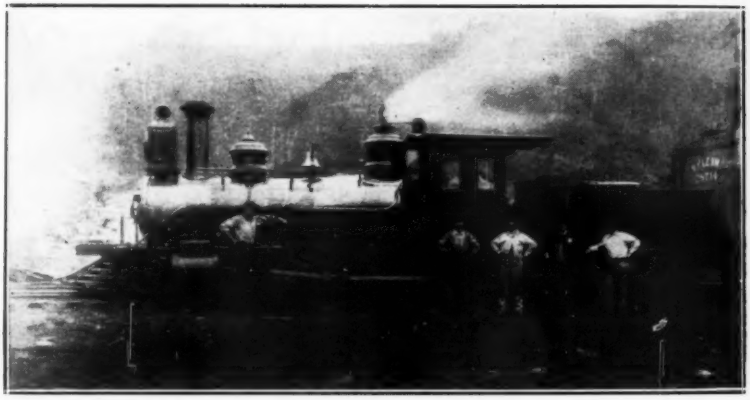
Iron Making. In this field of operations the railway is chiefly interested in the enterprise of the Buffalo and Susquehanna Iron Company at Buffalo, and in the transportation of ore from Buffalo to furnaces in Eastern Pennsylvania. The splendid new furnaces owned and operated by the Buffalo and Susquehanna Iron Company at South Buffalo produce foundry pig iron. The company owns an abundant supply of iron ore in mines near Hibbing, Minnesota, and Iron Mountain, Michigan. For the transportation of ore from Lake Michigan and Lake Superior ports to Buffalo a line of steamers is operated by the Buffalo and Susquehanna Steamship Company. Three vessels are in service: the cargo capacity averages 10,000 tons of ore. The three ships handle all of the ore required by the Buffalo works.

Products of oil wells and refineries, feed and flouring mills, paper mills, manufacture of concrete blocks, bricks and clay products, shoe lasts, powdered milk, knit goods, gloves, woodenware, engines, machinery, electric light apparatus, sash, doors, blinds, furniture, toys, glassware and malt liquors.

For fourteen years the greater part of the present Buffalo and Susquehanna system has maintained a prosperous existence. The management has been prudent and has cultivated wisely the traffic naturally tributary in the local field, and with the present expansions, there is every assurance of a continuation of the gratifying results of the past on a larger and broader scale.

The history and the present development of the Buffalo and Susquehanna railway afford an interesting illustration of the steady growth of a well conceived enterprise into general importance in the business world. With its thoroughly well built and well equipped mileage in two prosperous states, with the great city of Buffalo for a terminus, with satisfactory and profitable connections with all of the northern trunk lines east and west of Buffalo, and with those leading into Philadelphia and beyond, with hundreds of thousands of tons of coal freight assured for transportation annually, with extensive allied interests steadily producing tonnage for its trains and with general traffic large and increasing, the Buffalo and Susquehanna Railway Company has established firmly a high standing in its special field. Having this vantage ground, the record of successful management in the past affords good assurance of future prosperity."

The annual report for the year ending June 30, 1907 shows a number of additional officers, including C. Peter Clark (son of the president of the New Haven) as general manager, George O. Wagner (son-in-law of Frank Goodyear) as assistant to general manager, Ganson Depew (a relative of the Goodyears) as assistant to the chairman of the board,



Courtesy of Mr. Chas. L. Miller of Taunton, Mass.

Addison & Pennsylvania Ry. Locomotive No. 6, "Thomas C. Platt." Hinkley Locomotive Co., Boston. Purchased new about 1887-8. Narrow gauge.

Left to right:

Thomas Taylor, Brakeman; went to Fall Brook Ry., at Corning; now retired on pension by N. Y. Central.

Delbert Schutt, Fireman; now a freight conductor on B. & S. div. of B. & O., Galeton, Pa.

Charles DeGroat, Engineer; died at Livingston, Mont. Road foreman of engines, N. P.

Frank S. Dodge, Conductor; died at Addison, N. Y., March 23, 1896.

Frank McCallum, Brakeman; came from Fall Brook Ry. Remained with B. & S. Now dead.

William H. Baumes, comptroller, and Edward A. Niel as traffic manager.*

Previous to 1907 the company had organized two additional subsidiaries, the Buffalo and Susquehanna Coal Mining Company capitalized at $10,000, purely an operating institution, its property consisting solely of tools, live stock, supplies, etc., and the Keystone Stores Company, capitalized at $50,000, operating general merchandise stores for the convenience of the employees of all the various Goodyear enterprises.

For 1907 the gross earnings were $1,853,857, expenses and taxes $1,314,659, net income $238,355. Total cost of all the railway and railroad properties was $23,538,357. Cost of equipment $3,800,648. Capital stock, B. & S. Railway Co., common $10,000,000. B. & S. Railroad Co., preferred $4,000,000. Funded debt of both companies $16,976,000. Locomotives, passenger 11, freight 47.

At this time the Goodyears controlled the following interests: Buffalo and Susquehanna Railway Company with its leased lines; the firm of F. H. and C. W. Goodyear; Buffalo and Susquehanna Iron Company; Buffalo and Susquehanna Steamship Company; Buffalo and Susquehanna Coal and Coke Company; Powatan Coal and Coke Company; Goodyear Lumber Company; Lackawanna Lumber Company; Buffalo and Susquehanna Coal Mining Company and the Keystone Stores Company.

Truly, it was a small empire. A history of Buffalo published in 1893 speaks of this great enterprise thusly: "The Goodyears now are literally lumber kings, coal kings, and railroad kings; they are among the largest dealers in the country and their product for 1892 exceeded one hundred million feet; their lumber output is immense and it is growing larger every year.

At the very height of his achievements, Frank H. Goodyear died on May 13, 1907, and this unfortunate happening seems to mark the turning point in the fortunes of the Goodyear enterprises.

The contract executed at the time of the lease of the railroad provided that the B. & S. railway should guarantee the interest and principal of the railroad's debt and the payment of 4% dividends on its principal stock. The railway now found itself unable to meet its own obligations to say nothing of taking care of those of the railroad. After Mr. Goodyear's death the company continued operations, financial matters becoming more and more involved, until May 2, 1910 when H. I. Miller was appointed receiver of the railway and on July 23, 1910 as receiver of the railroad, the company having defaulted on the interest due on its first mortgage bonds. Thereafter the properties of the two companies were independently operated by the receiver, separate accounts being kept for each.

January 1, 1914 the property of the B. & S. railroad was sold under foreclosure to the newly organized Buffalo and Susquehanna Railroad Corporation, incorporated under the laws of Pennsylvania December 31, 1913, as a reorganization of the Buffalo and Susquehanna Railroad

*Mr. Niel later became Traffic Manager of the B. R. & P. Ry., and is now retired living in Rochester.

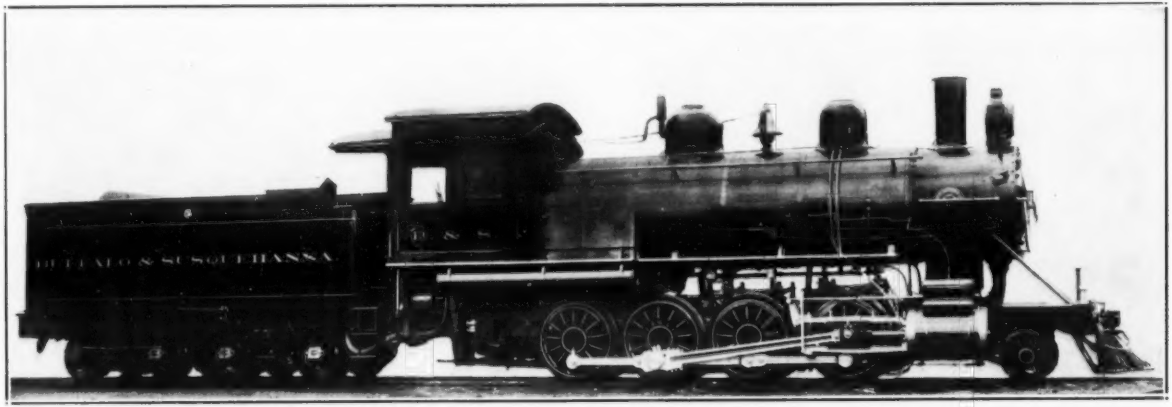
Company. The line continued as such until 1932 when it became a part of the Baltimore and Ohio system.

June 30, 1914 the property of the B. & S. railway was sold under foreclosure to a bondholders' committee called the Susquehanna Finance Corporation and conveyed by that concern to the newly formed Wellsville and Buffalo Railroad Corporation, incorporated under the laws of New York, December 10, 1915. The new owners operated the line a year when it was abandoned its entire length, the rails, bridges and steel being sold to the French Government for war purposes. The right of way is plainly visible today, an excellent example of engineering skill, a sad monument to a great endeavor.

If it had not been for the untimely death of Mr. Goodyear it seems quite probable that, with his wide and intimate acquaintance in the business, financial and legal world, his energy, foresight and resourcefulness, his genius for organization and accomplishment, some means would have been devised to save the companies from the fate which befell them.

What remains of the B. & S. today is merely a ghost of its former self. A freight train runs as an extra from Galeton to Wellsville and return daily. An extra freight makes a daily trip from Galeton to Austin and return and this engine does the yard work for the paper mill at Austin, which is the only industry in the village. The terminal at Wharton has been discontinued, there now being but a skeleton yard force there. The Cross Fork branch has been abandoned and the rails from Austin to Keating Summit are gone. The Potato Creek line was taken up a number of years ago. Service on the Ansonia branch is merely an interchange of a few cars during the week with the Pennsylvania Division of the New York Central. The line from Galeton to Addison seems to be doing the most business with a daily local freight, an extra freight and one round trip by a passenger train. This is the only passenger service now where years ago there were many daily passenger trains on all parts of the system, with Pullman parlor cars running into Buffalo. The former B. & S. lines south of Wharton are operated as a part of the B. R. & P. division of the Baltimore and Ohio, that company, as we know, having gone into the B. & O. at the same time the B. & S. did. So, what we might term the B. & S. division consists today of a main line from Austin to Addison with a branch to Wellsville and a branch to Ansonia. Operations are directed from Galeton in charge of George D. Reynard with the title of assistant superintendent. The train dispatcher's office is there as well as the car and locomotive repair shops. But six locomotive engineers are on the regular board.

The Addison and Pennsylvania. This company was originally chartered in New York, June 19, 1882 and in Pennsylvania, July 13, 1882, as the Addison and Northern Pennsylvania Railway Company, to construct a single track, narrow gauge railroad from a connection with the Erie at Addison, N. Y., following Tuscarora Creek southerly to the state line, thence the Cowanesque River to Westfield, Pa., and Mill Creek to Gaines, Pa., a distance of 41 miles.



Courtesy of Baldwin Locomotive Works.

B. & S. #114. Baldwin. 1901.

The promoters of this enterprise were the same persons who controlled several other narrow gauge railroads in the western portions of New York and Pennsylvania, including the Tonawanda Valley and Cuba, the Bradford, Eldred and Cuba, the Wellsville, Bolivar and Eldred and the Bradford, Bordell and Kinzua. They were Thomas C. Platt of Owego who was at that time United States senator from New York and President of the United States Express Company, William C. Sheldon of New York City, an official of the United States Express Company, Samuel H. Morgan of Addison, merchant, Roscoe Conklin of New York City, a prominent attorney and United States senator, Bird W. Spencer of Passaic, N. J., a financier, James E. Jones of Addison, a well-to-do citizen, William Brookfield of New York City, a close friend of Senator Platt, Richard G. Taylor of Buffalo, division superintendent of the Erie and president of the Tonawanda Valley and Cuba, Charles L. Pattison of Elkland, banker and former treasurer of the Corning, Cowanesque and Antrim railroad, James Horton of Westfield and John W. Hammond of Osceola, merchants and bankers, Frank M. Baker of Owego, a relative of Mr. Platt, superintendent, Henry C. Hitchcock of Boston, Mass., auditor, and Nathan S. Beardslee of Warsaw, chief engineer.

These gentlemen first came to Addison in the summer of 1882 and made several trips between that village and Gaines with horses and carriages. Later in the season engineering surveys were made. Heavy grades were encountered from Addison to the state line necessitating laying out the road around and over the high hills. At Nelson the line dropped into the Cowanesque valley to Westfield, then southerly following Mill Creek into Gaines. Early in September actual construction commenced with equipment of shovels, plows, handscrapers and two-wheel carts. Hundreds of Italians were employed and the work moved rapidly.

Here I will let Mr. Edward B. Bryant, senior engineer of the Addison and Northern Pennsylvania, tell the story of the early days on the road. "I shall give all the information I can remember up to March 15, 1885, when I resigned and went into the northwest.

The same people seemed to be interested in the A. & N. P., as were backing the Tonawanda Valley and Cuba and the Bradford, Eldred and Cuba railroads.

I was employed as a locomotive engineer by the T. V. & C., and for a short period was loaned to the B. E. & C., returning to the T. V. & C. in the spring of 1882 remaining there until the autumn of that year.

September 26, 1882 I was sent with T. V. & C. engine No. 2 to Elkland, Pa., to start the laying of tracks of the A. & N. P. Ry., from Nelson to Westfield. We loaded the engine on a flat car at Attica and traveled over the Erie to Corning and from there to Elkland over the Cowanesque Valley branch of the Corning, Cowanesque and Antrim railway. We arrived the following Saturday evening, unloaded the engine Sunday, and went to laying track on Monday morning, the contractor having completed the grading. Daniel Conderman was my fireman. In the meantime Engineer Henry E. Maxon with T. V. & C. engine No. 1 was sent from Attica to Addison to lay the track from Addison to Nelson. After

we connected the rails at Nelson I distributed the telegraph poles, wire, fence boards, posts and lumber for the depots. During this time Engineer Maxon with locomotive No. 1 was laying track from Westfield to Gaines. The two T. V. & C. engines were returned when the new A. & N. P. locomotives arrived.

Time table No. 1 went into effect November 27, 1882 when the company put on a daily passenger train in each direction between Addison and Westfield. By January 15, 1883, things were going so nicely that they put on a local freight between Addison and Gaines. I handled the passenger run, working out of Westfield. We made two round trips daily, as trains 2, 1, 4 and 3. The local freights were run as 5 and 6. If I remember correctly, about July 1883, we ran train 1 through to Gaines and back as No. 4, with Nos. 2 and 3 operating only as far as Westfield. Gaines was the southern terminal until the spring of 1884 when we began to run trains into Galeton. Later I gave up the passenger run and took a coal train between Addison and Gurnee, to which place the company had constructed a branch to reach the coal mines which they owned. I was but 21 years of age and ran the first regular train on this branch. The curves were sharp and the grades steep up the mountain and at first we ran the cars down ahead of the locomotive for safety. Time table No. 5 was the first issued after the line was extended to Galeton. It showed trains 1 and 4, the Daily Mail, operating between Addison and Galeton, the Day Express, passenger trains 2 and 3, operating between Addison and Westfield, a mixed accommodation, Nos. 5 and 6 between Addison and Gaines, and the coal and freight trains operating as "wild cats."

Senator Thomas C. Platt seemed to be the directing head of the road. Frank M. Baker was superintendent. Nathan S. Beardslee was civil engineer. David J. Kirkpatrick of Cuba was in charge of the right of way. James P. Wright was roadmaster on the main line and Peter Parshall was roadmaster for the Gurnee branch. Hiram Sutliff was foreman of bridges, later a conductor. Charles L. Miller was train dispatcher. Harry Pratt, son of the senator, was the first superintendent of the coal mines, succeeded by Peter A. Jordan. John Ripple from the Pennsylvania railroad came to Gaines and opened a general machine establishment and he made repairs to the A. & N. P. engines in his shop. He had learned his trade as a machinist in Germany. Charlie Cook, now senior engineer on the B. & S., fired for me when he first went to work on the A. & N. P.

We had five new Hinkley locomotives. Two were passenger engines 4-4-0 type, two were freight engines 2-6-0 and one a four wheel tank switch engine. This last was used at Addison where we transferred standard gauge freight cars to the narrow gauge trucks. There was no transferring of loads from car to car. We had several box and flat cars that were used for local freight only. We had one combination mail, express and baggage car, two nice coaches, one combination baggage and passenger car for local traffic and one caboose.

The United States Express operated over our line. The express messenger went through over the Erie to the D. L. & W. depot at Painted Post, with the expressage.

B. & S. #116. Brooks. 1903.

Courtesy of American Locomotive Co.

During the summer of 1883 the road bed was washed out between Sabinville and Westfield and had to be rebuilt. In later years I heard that it was again damaged in the floods of 1889. We did a good passenger and freight business when I was with the road, but like all other new roads in those days they had more or less hard luck. There was a tannery at Galeton when we built the road in there and I pulled the machinery into Galeton for the first saw mill in Potter County. It was all virgin forest 55 years ago.

There was one incident on the road that I will never forget. I was pulling the local freight train northbound. Just a short distance south of the depot at Freeman's Station there was a long left hand curve on a high wooden trestle. We had a double deck Erie stock car loaded with calves, and seven cars of coal behind it. We made a mistake in putting the car of stock next to the engine, having picked it up at Westfield and should have put it next to the caboose. At any rate, just as we were going into Freeman's, as the engine and stock car were on the trestle, the whole train with the exception of the engine and the caboose turned over. The stock car landed bottom side up on the highway along the bank of the creek. The engine and tender were off the track; the link in the coupler broke between the tender and the stock car just before the engine turned over far enough to go with the stock car. I thought we were goners, but as the link broke we came back on the track again. Hiram Sutliff was the conductor and he was on the engine. No one was hurt but all the calves were killed. Those big Erie standard gauge stock cars, loaded top and bottom, when placed on narrow gauge trucks, swayed back and forth all the time a train was running and if they leaned over a little too far they turned over. They were especially bad on curves.

At the time of the 1883 flood I was on the passenger train. About a quarter of a mile north of the Sabinsville depot I stopped to look at the approach to a small trestle that I did not like the looks of. When I got off the engine to look things over, the bank at the trestle went out. Conductor Parshall come to the engine to see what was wrong. I showed him that the track was gone. He then said "We will back up to the Sabinsville depot and unload the passengers, mail and express." At that time a passenger who had overheard the conversation, said, "You can't back up, for look back there." The rails and ties were down seven feet in the water. This passenger said he was on the rear platform and just as we went over the spot the tracks went down in the water. We had no track in either direction and were on the only solid ground. In three days we got men and blocking enough to get the rails up in place so that the train could be got back to the depot and put in the siding. We were used as a work train for thirty days repairing the right of way between Gaines and Westfield. This was before the Gurnee branch was in operation."

The following quotation is from the local newspaper at Addison:

"The Addison and Northern Pennsylvania Railway Company's line extends from Addison to Gaines, its present terminus, a distance of forty-two miles. It has attained a phenomenal success for the short time it

has been running, and is, we understand, the only narrow gauge road in western New York or northern Pennsylvania that pays the interest on its bonds and a handsome remainder on the principal each month. The officers are the Hon. Thomas C. Platt, president, George R. Blanchard, vice president and William C. Sheldon, treasurer. These gentlemen all reside in New York City. The superintendent, Frank M. Baker, is a gentleman well known throughout the state and is a very popular man, especially in the New York State Volunteer Firemen's Association of which he is the president. He is well liked by all the employees of the road and a better man for the place it would be hard to find. The auditor, Henry C. Hitchcock, a Boston gentleman, fills the place acceptably and the boys all look for the 'little man' on pay day. In the office at Addison we find besides the superintendent and auditor, Colonel James E. Jones, secretary of the company, who attends to the legal work, Charles L. Miller, train dispatcher, and Christopher P. Colgan, superintendent's clerk.

The agents are as follows: Freeman's, Isaac Boyer; Elkland, Herbert M. Johnson; Osceola, Vernon Crandall; Knoxville, George W. Fisk and Hugh Ross, operator; Westfield, Gib. H. Tremaine and Edward Bliss, operator; Sabinsville, Milford B. Stebbins; Gaines, Eugene A. Mark; Gurnee, Patrick J. McGuire. Roland Henry Wombough runs the company's store at Gurnee.

The engineers are: Charles F. DeGroat,* Henry E. Maxon, William Nelson, who throttles the 'pig' as the yard engine, No. 5, at Addison is called, Henry Mahon runs No. 3, John 'Granny' Butler runs No. 4 on passenger, Ed. Bryant has No. 1, and Oscar Baker, who came from the Fall Brook, runs No. 2. In addition to Mr. DeGroat and Mr. Maxon, Frank Wedge and Fred 'Dutchey' Pomery run extra.

The conductors are J. Wiley Parshall on passenger, Oliver R. Enos, an old Southern Central operator, on the coal train, Hiram B. Sutliff on the way freight, Edward F. Blake on the through freight.

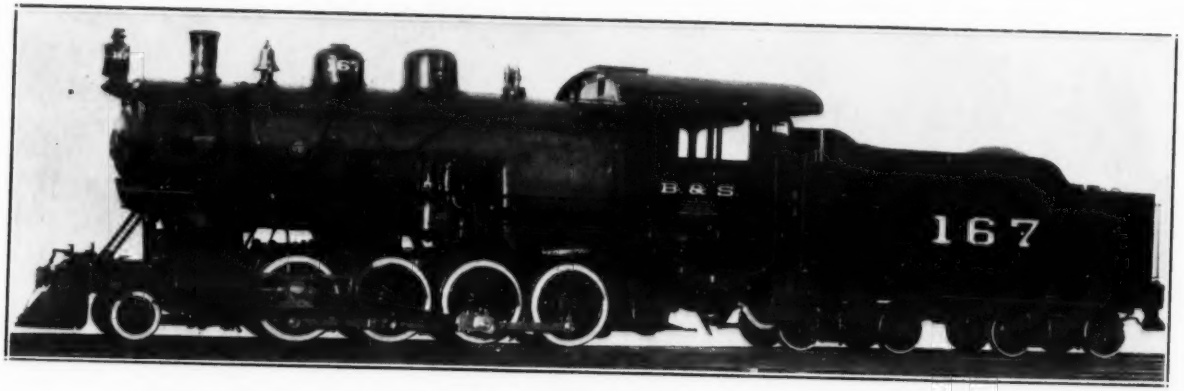
James P. Wright, an old Erie railroad man, is the efficient road master.

In connection with this company is the Gaines Coal and Coke Company, which operates the mines at Gurnee. Sixty miners are employed and the number is to be increased owing to the increased demand for the coal. The superintendent of the mines is Patrick A. Jordan, who is the right man in the right place. This company is composed of the same gentlemen who are the officers of the A. & N. P. Ry.

The extension of the road, under the name of the New York and North Pennsylvania, is from Gaines to Pike Mills, Pa., and is very near completion. The expectation is that it will be ready for business about December 15th. It will be extended in time to Coudersport, Pa., which will connect it to the Buffalo, New York and Philadelphia railroad.

The A. & N. P. delivers on an average each month to the Erie at Addison 400 car loads of freight and receives about 250 to 300 car loads.

*Mr. DeGroat was from Owego, N. Y. Later he went west, was engineer on the North Coast Limited and at the time of his death a few years ago at Livingston, Mont., was road foreman of engines for the Northern Pacific railroad.



B. & S. #167, Brooks, 1908.

Courtesy of American Locomotive Co.

This does not include the total amount of freight handled, as a large portion is hauled in narrow gauge cars."

For the purpose of extending the line to reach the tanneries and the sawmills to be erected in and around Galeton, there was incorporated, under the laws of Pennsylvania, May 7, 1883, the New York and North Pennsylvania Railroad Company, the charter granting to the company authority to construct a single track railroad, of a gauge not exceeding three feet, from the terminus of the Addison and Northern Pennsylvania Railway at the village of Gaines, through the counties of Tioga and Potter, to the village of Coudersport. The officers and directors of this new corporation were the same as those of the A. & N. P., Mr. Pattison acting as president. Upon completion of the road to Gaines, five miles, which was as far as it ever got, it was leased to the A. & N. P., and was operated by it as a part of its line.

The branch from Gurnee Junction (a few miles north of Gaines) ran easterly through Bend Gully five miles to a mining hamlet called Gurnee in Gaines township. In addition to the soft coal from the company's mines, the railroad hauled out considerable lumber and glass rock, the latter going to the glass manufactory at Corning. When the coal began to play out in later years and the timber was exhausted, this branch was abandoned. The right of way is visible today leaving the main line near Davis and climbing along the side of the mountain on a steep grade.

The following item appeared in the newspaper at Addison under date of April 17, 1885: "There are good grounds for believing and stating that the Addison & Northern Pennsylvania railway is about to pass into the hands of a receiver. The road made some money last year but vexatious and expensive litigation has occurred, and more is threatened in the matter of right-of-way suits, and the road is forced to tie up financially."

In August 1885 default in the payment of interest was made and in April 1886 Senator Platt was appointed receiver. May 5, 1887 the property was sold under foreclosure, was purchased by a committee representing the bondholders and by such committee was transferred to the—

Addison and Pennsylvania Railway Company, organized July 21, 1887, to take over the line of the A. & N. P. Ry., from Addison to Gaines, including the Gurnee branch, and the lease of the N. Y. & N. P. R. R. from Gaines to Galeton, a total mileage of 52. Same officers, directors and operating officials as the A. & N. P.

The roster at this time shows the following narrow gauge locomotives, all purchased new from the Hinkley Locomotive Works of Boston:

No. 1, Charles L. Pattison, 2-6-0, Freight, Built in 1882.
No. 2, George R. Blanchard, 2-6-0, Freight, Built in 1882.
No. 3, William C. Sheldon, 4-4-0, Passenger, Built in 1882.
No. 4, James E. Jones, 4-4-0, Passenger, Built in 1882.
No. 5, Roscoe Conklin, 0-4-0T, Switcher, Built in 1882.
No. 6, Thomas C. Platt, 2-6-0, Freight, Built in 1887.

Additional rolling stock were 4 passenger coaches, 2 baggage, mail and express cars, 15 box cars, 40 flat cars and 2 cabooses. Cost of road and equipment $1,281,218. 140 employees including officers.

The annual report for the year 1892 shows a deficit of $7,512, deficit forward $31,524; total deficit $39,036.

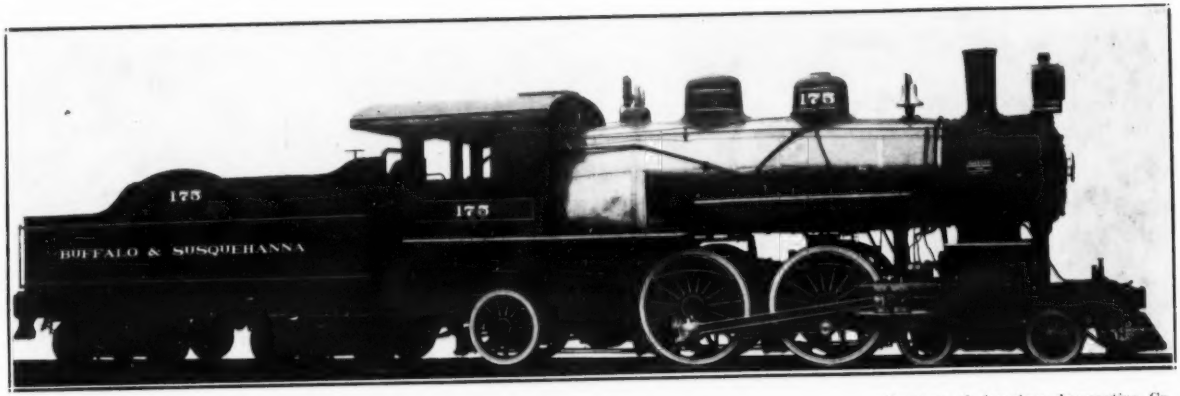
In 1893 the road was widened to standard gauge and the narrow gauge equipment was disposed of. At this time the company purchased second-hand from the New York, Lake Erie and Western railroad three standard gauge locomotives which they numbered 1, 2 and 3. These engines are included in the locomotive roster below as 132, 133 and 134, the renumbering into the B. & S. series.

The first fatality on the A. & N. P. occurred on the morning of July 7, 1885. Engineer John W. Butler was pulling the northbound passenger train which left Gaines at 6.20 A. M. When he reached the top of the hill just south of the village of Nelson, a half mile north of the state line, and started on the down grade, he ran into an obstruction on the track which had been placed there during the night by a disgruntled farmer who had a grudge against the railroad because of disagreement over the right of way through his farm. The engine turned over and Mr. Butler was pinned under it. The fireman, Ora Baker, was standing on the deck when the accident happened and jumped off. It took two hours to dig Mr. Butler out. Men poured three pails of water on him per minute to keep him from burning up. The tank was tipped enough so they could dip the water out. A trainman ran ahead and flagged the southbound coal train, which was backed to Addison to get help and a physician. Mr. Butler was taken to his home in Westfield and his left leg was amputated below the knee that night. His right leg was badly burned. He died Friday, July 10th, leaving a wife and three children, and his body was shipped to the home of his parents in North Berwick, Maine. He came from a fine family, his father being an attorney in North Berwick. He received a good education, but took to railroading after finishing school, in the state of Maine. As a young man he left home and went to Hornellsville, N. Y., where he had three second cousins who were locomotive engineers on the Erie. He became a locomotive fireman and remained with the Erie until the opening of the T. V. & C. at Attica, where he received employment as an engineer. Some months after the A. & N. P. got started he went to that company as an engineer.

In 1898 the firm of F. H. and C. W. Goodyear purchased the Addison and Pennsylvania. They then incorporated that portion of the line in the state of New York, from Addison to the Pennsylvania state line, as the Addison and Susquehanna Railroad Company, charter dated June 21, 1898, and later leased it, as of April 1, 1901, to the B. & S. railroad.

Under date of May 31, 1898 a certificate of reorganization was filed in the Secretary of State's office at Harrisburg forming the Susquehanna and New York Railroad Company, to cover that portion of the A. & P. railway from the Pennsylvania state line to the village of Gaines, and merged this property into the B. & S. as of April 1, 1901.

The property of the New York and North Pennsylvania Railroad Company, from Gaines to Galeton, was reorganized, as of May 31, 1898,



Courtesy of American Locomotive Co.

B. & S. #175. Schenectady, 1904.

as the Galeton and Eastern Railroad Company, and this was merged into the B. & S. as of April 1, 1901. This line paralleled the Buffalo and Susquehanna's Ansonia branch from Galeton to Gaines, the latter being on the south side of Pine Creek and the Galeton and Eastern on the north side. Shortly after the merger Mr. Goodyear connected up the two lines a quarter of a mile west of Gaines, at a point named by him as Gaines Junction, and thereupon abandoned the line of the Galeton and Eastern in its entirety.

I would like to quote here the interesting story of Mr. Rudolph Soranson, now at St. Marys, Pa.

"My people moved to Westfield, Pa., in the late seventies, where I attended school until about 1884. At that time the old Corning, Cowanesque and Antrim railway passed through Westfield and the village was the southern terminus of the Addison and Northern Pennsylvania railway. I was interested in the railroads and spent much of my time at the depot learning telegraphy and station work. After leaving high school I studied stenography and typewriting, and through the influence of the station agent, Mr. G. H. Tremaine, I secured a position as clerk and stenographer in the office of Mr. Frank M. Baker, superintendent of the A. & N. P., at Addison. I did everything from janitor work to acting as secretary to Mr. Baker, including telegraphy, bookkeeping, auditing freight and ticket reports, station work, keeping the shop and car repair records. These were long days from about seven in the morning until eleven in the evening, or later, if necessity demanded. I worked practically for my board, with an occasional small stipend, but the real compensation was a thorough and varied experience in railroading.

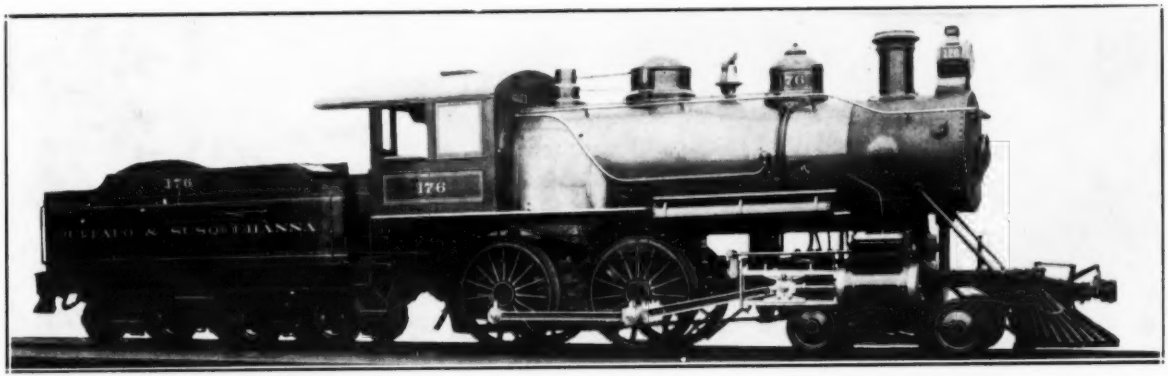
There were two passenger trains in each direction daily between Addison and Galeton, one mixed train in each direction, a coal train to and from the Gurnee branch and a way freight in each direction, with many extra or 'wild cat' trains, as they were known in those days, with lumber and other freight.

During the Johnstown flood of 1889 a severe storm occurred in the Cowanesque and Mill Creek valleys. Nearly every mile of track of the A. & N. P., in those two valleys was under water and bridges and culverts between Westfield and Elkland were swept away. The high wooden trestle over Tuscarora Creek north of Freeman's depot was completely wrecked. The work of rebuilding was carried forward as rapidly as possible, but the expense was staggering for the little railroad.

The property at Addison consisted of a freight and passenger station building with the general offices on the second floor, a two stall round house, coaling and watering facilities, a small repair shop and an arrangement which was called a 'hoist'. This consisted of elevated and depressed tracks with side carriages running on an inclined track. A siding from the Erie ran into this hoist, the two outer rails being theirs and the inside track being the A. & P. narrow gauge. This latter company had a small saddle back tank shifting engine which did the yard work and operated this hoist. Through its operation the A. & P. handled standard gauge cars, both loads and empties, for many years on a narrow gauge track.

When I first entered the service the southern terminus was Gaines. Lumbering operations in that section kept gradually extending westward and it was decided to extend the railroad five miles to Pike Mills, later called Clintontown, and now the borough of Galeton, where large sawmills had been erected by R. W. Clinton and Sons and where also the large tannery of William and L. R. Gale was located. To construct this extension it was necessary to secure a new charter, which was issued in the name of the New York and North Pennsylvania Railroad Company. The road secured a large tonnage both to and from that terminus and its future outlook was very favorable. Not many years ensued, however, before it was rumored around that the Sinnemahoning Valley railroad then building easterly, had Galeton as its objective. In 1889 and 1890 the Goodyear firm had purchased large tracts of virgin hemlock along Pine Creek and in Abbott and Stewardson townships. These rumors grew stronger as strange civil engineers appeared through the mountains running lines, with occasional visits in and around the village. The A. & P. people investigated these rumors and hurried trips were made between Addison and New York City where Senator Thomas C. Platt the president of the A. & P., had his office. It was decided to have Mr. Baker interview all of the larger stockholders to try to induce them to put more money into the A. & P. so that the line could be extended westerly to Coudersport which the company had authority to do under the charter of the New York and North Pennsylvania. The majority of the stockholders had contributed heavily to the reconstruction of the road after the disastrous flood and in the extension to Galeton, and with the further fact that the Gurnee mines were showing a diminishing traffic, they were reluctant to part with any more funds. It was understood at the time that the lumber and tannery interests and the business men of Galeton favored the extension. Some preliminary surveys were made and options on land secured in an effort to block the entry of the S. V. into the township. However, the Goodyear interests soon began to work openly around Galeton, planning large terminal yards, car and locomotive shops, running lines to a connection with the Fall Brook Railway at Ansonia and incidentally crossing Pine Creek into the yards of the Clinton mill which had been served by the A. & P. They also surveyed a line northward, along the west branch of Pine Creek, and it was heard around the village that they had purchased the Wellsville, Coudersport and Pine Creek railroad and would connect it to Galeton with their new line. By this time the morale of the A. & P. was practically gone.

After the flood in the Cowanesque valley in 1889, mentioned above, the A. & P. secured two civil engineers from the Lehigh Valley railroad at Sayre to assist in relocating their damaged right of way, straightening curves and preparing elevations. After this was finished, one of them, Will C. Park, remained with the A. & P. and was appointed roadmaster, replacing James Wright, a man along in years who had come from the Erie when the narrow gauge was first started. Mr. Goodyear frequently met Mr. Park while in the vicinity of Galeton, discussed railroad matters with him, this acquaintance resulting in the appointment of Mr. Park as trainmaster of the B. & S. at Austin. Mr. Park and myself roomed to-



B. & S. #176. Baldwin, 1905.

Courtesy of Baldwin Locomotive Works

gether at Addison for a long time and we were staunch friends. He is now retired and lives at Orlando, Fla.

Decreased traffic, cutting of expenses, strong competition in the Cowanesque valley and at the southern terminus, caused Mr. Baker to lose interest in the road and he prevailed upon Senator Platt to secure for him an appointment as a member of the Board of Railroad Commissioners of New York State. Mr. Baker had taken me to his home in Owego to act secretarily and care for his private and political affairs. It was about this time that Mr. Park left the A. & P. and went to the B. & S., and he offered me a position as chief clerk, he being promised a promotion to the superintendency. This I accepted and consequently I was in on the ground floor when the big events in the history of the B. & S. were happening. In addition to my work with Mr. Park I acted as stenographer to Mr. Goodyear when on location and for some years thereafter I was thoroughly acquainted with the company's aims, methods of business, extension of lines, railroad and mill operations, the acquiring of mines, rights of way, logging operations, etc. In fact, I firmly believe that more development work was projected and consummated on the ground than was ever accomplished in the offices at Buffalo.

Just before leaving Owego, Mr. Baker, learning that I was going with the B. & S., asked me to broach to Mr. Goodyear the subject of the acquisition of the A. & P. railway, stating that a solution of its problems must soon be made or it would have to go into receivership. Mr. Baker was about to sever his connection with the railway and he felt that if the B. & S. would make a fair offer for the property the deal undoubtedly could be arranged.

The opportunity came to me more quickly than I expected. One evening I was taking dictation from Mr. Goodyear at Austin, a few weeks after my going with the B. & S., and he asked me regarding the local traffic handled on the A. & P., the approximate passenger and freight business interchanged with the Erie at Addison, coal tonnage, maintenance and operating expenses, etc. I explained that M. Baker contemplated leaving the road because of the promised appointment to the Board of Railroad Commissioners and he had said to me that Mr. Goodyear might consider the A. & P. a good outlet for his line, either by trackage rights, a lease or purchase. Mr. Goodyear appeared to be delighted to receive this information and said I could convey to Mr. Baker the promise that he would give the matter consideration. I believe that from then on the die was cast, as I was questioned by Mr. Goodyear for weeks, at every dictation, for more information.

At Austin I was closely associated with the trainmaster, Hugh Hutchinson, and his son, John J., who was telegraph operator in the general offices. The latter is now D. L. & W. station agent at Berwick, Pa.

A conflagration destroyed most of the village of Austin around 1899 and I lost all of my personal effects, records, and a large collection of forms, time tables, etc., of the A. & P., the S. V., and the B. & S. which I had gotten together.

You ask me regarding the disposition of the narrow gauge equip-

ment of the A. & P., when the road was made standard gauge. Previous to the widening of the road and for a number of years Mr. Baker made it a practice to spend the winter months in Savannah, Ga., because of Mrs. Baker's health. On one of these occasions he became interested in a proposed railroad near Savannah which was to be built for the purpose of developing a virgin pitch pine and turpentine territory. I handled considerable correspondence regarding this and Mr. Baker was visited frequently by a representative of the Florida Central and Peninsula railroad. The matter of finances was arranged in New York City without delay and Mr. Baker was placed in charge of the new railroad. If my memory serves me correctly, several of the A. & P. engines were loaded on flat cars and sent to this southern railroad.

The last narrow gauge engine purchased by the A. & P. was numbered 6, and was a modern engine for those times, equipped with air brakes. I believe that this engine went to a coal subsidiary of the Tennessee Central Railway of which Senator Platt was then the president.

The B. & S. had one locomotive which was in a class by itself. It was a monstrous engine for those days and would just about make the necessary clearances. After the road was extended to Ansonia it gave the B. & S. an eastern outlet, and the idea as to how to use it to the best advantage seems to have originated in the fertile mind of Mr. Goodyear. A large portion of the manufactured products of the B. & S. was destined to points on the Lackawanna railroad which passed through Corning. Mr. Goodyear was loath to split up the freight rates with an intermediate line and after much negotiating he secured a favorable contract on a trackage basis with the Fall Brook railway, and everything appeared to be rosy. Then he let a contract with the Baldwin company for one of the largest locomotives they were able to build, in order to save coal and train expenses. After it appeared on the line, howls went up from the Fall Brook people, they claiming that the engine was weakening their bridges, spreading the rails on curves and tieing up their traffic, as the passing sidings were not long enough to accommodate trains the length that this engine would pull, it having to be given the right of road in preference to their own traffic. This eventually resulted in taking the engine out of service and placing it in cold storage at Galeton and I do not know what ever became of it. The contract for trackage rights was soon cancelled.

Soon after the conflagration at Austin, mentioned above, the general offices were all moved to Galeton where I remained several years. Later I entered the traffic department of the Pittsburg, Shawmut and Northern railroad."

Frank M. Baker was born in Owego, N. Y., March 26, 1864. His first employment was in the Erie railroad's freight office in that village. In 1872 he became division freight agent of the Southern Central railroad (now part of the Lehigh Valley), remaining in that position until he was appointed superintendent of the Addison and Northern Pennsylvania railroad in 1882. In addition to his duties with the A. & P., he was agent for the receiver, in 1893, of the Bradford, Eldred and Cuba

Buffalo & Susquehanna Railroad Company

Road Number	Builder	Year	Construction	Type	Cyls.	Wb.	Wt.	
1				2-6-0				Purcl Penn
1st 2	Dickson			2-8-0				See
2nd 2	Baldwin	1888	9121	2-8-0	20x24	46"		Form
3	Baldwin	1892	12526	0-6-6-0-T				Form Nam
21	Baldwin	1903		0-6-0	20x26	50"		Yard
1st 101	Baldwin	1895	14411	2-8-0	21x26			
2nd 101	Baldwin			2-8-0				Purcl sourc
102	Baldwin	1893	13879	4-6-0	19x24			Form
103	Baldwin	1894	14011	2-8-0	20x24			
1st 104	Baldwin	1893	13471	2-8-0				See
2nd 104	Baldwin	1894	14018	4-6-0	19x24	49½"		Form
105	Baldwin	1894	14012	2-8-0	20x24	47"		
106	Baldwin	1895	14209	2-8-0	20x24	47"		
107	Baldwin	1895	14324	2-8-0	20x24	47"		
1st 108	Baldwin	1893	13879	4-6-0	19x24			
2nd 108	Baldwin	1894	14017	4-6-0	18x24	55"		Form
3rd 108	Baldwin	1895	14325	2-8-0				
109	Baldwin	1895	14350	2-8-0	20x24		163,550	
1st 110	Baldwin	1894	14017	4-6-0	18x24	55"		
2nd 110	Baldwin	1895	14351	2-8-0	20x24			
1st 111	Brooks	1894	2412	4-6-0	19x24	55"	132,000	
2nd 111	Baldwin	1894	14018	4-6-0	19x24	49½"		
112	Baldwin	1895	14411	2-8-0	21x26			Form
113	Baldwin	1901	18892	2-8-0	22x26			
114	Baldwin	1901	18893	2-8-0	22x26			
1st 121	Brooks	1899		2-8-0	20x28	55"		
1st 122	Brooks	1894	2412	4-6-0	19x24	55"	132,000	Form
1st 123				2-6-0				Form
1st 124	Baldwin	1888	9121	2-8-0	20x24	46"		Form
1st 131	P.W.&B.R.R.	1873		4-4-0	16x24	66"	64,450	See
1st 132	Erie R. R.	1881	Erie 144	4-4-0	18x22	62"	77,000	See
1st 133	Erie R. R.	1882	Erie 155	4-4-0	18x22	62"	77,000	See
1st 134	Erie R. R.	1881	Erie 238	4-4-0	18x22	62"	77,000	See
1st 150	Lima	1901		Shay-gear				
115	Brooks	1903	26608	2-8-0	20x28	51"	167,200	
116	Brooks	1903	26609	2-8-0	20x28	51"	167,200	
117	Brooks	1903	26511	2-8-0	20x28	51"	167,200	
118 to 122 inclusive	Brooks	1903	27796 to 27800 incl.	2-8-0	20x28	51"	167,200	
123 to 129 inclusive	Brooks	1904–5	29184 to 29190 incl.	2-8-0	21x28	51"	184,800	
130 to 140 inclusive	Brooks	1905–6	30750 to 30760 incl.	2-8-0	21x28	51"	184,800	
141 to 143 inclusive	Brooks	1906	40865 to 40867 incl.	2-8-0	21x28	51"	184,800	
144 & 145	Brooks	1907	42272–3	2-8-0	21x28	51"	184,800	
146	Brooks	1907	42379	2-8-0	21x28	51"	184,800	
147	Brooks	1907	42380	2-8-0	21x28	51"	184,800	
148	Brooks	1907	42276	2-8-0	21x28	51"	184,800	
149 to 158 inclusive	Pittsburgh	1907	44529 to 44538 incl.	2-8-0	21x28	51"	184,800	
		1909	44765 to	2-8-0	21x28	51"	188,000	

Buffalo & Susquehanna Rai

otive Roster

anna Railway Company **Buffalo & Susquehanna Railroad Corporation**

Remarks	*Disposition*
Purchased second-hand in 1886 from Pennsylvania R. R.	Changed to No. 123 in 1893.
See Note A.	Formerly Sinnemahoning Valley No. 1.
Formerly S. V. 2nd No. 2.	Formerly S. V. 1st No. 2.
Formerly S. V. No. 3.	Changed to 124 in 1893.
Named "Edward T. Johnson"	Proved to be unsatisfactory and sold in 1902.
Yard Switch Engine.	Went to Goodyear Lumber Company.
	Changed to No. 112.
Purchased Second-hand about 1898, source unknown.	Sold.
Formerly 1st No. 108.	Sold to Wellsville & Buffalo R. R., Jan. 1917 for $2,500.
	Sold to Southern Iron & Equipment
See Note B.	Co., Feb. 1917, $3,325.
Formerly 2nd No. 111.	Sold to Wellsville & Buffalo R. R., Dec. 1916, $2,500; then to Genesee & Wyoming R. R., and lastly to Arcade & Attica R. R.
	Sold.
	Scrapped Sept. 1916.
	Sold to Maritime Coal, Railway & Power Co., July 1915 $2,690.
	Changed to No. 102.
Formerly 1st No. 110.	Sold to Motley County Rd. Co., of Texas, Dec. 1916 $4,600.
	Sold to W. & B. R. R., Dec. 1916, $2,500.
	Changed to 2nd No. 108.
	Scrapped Sept. 1916.
	Changed to 1st No. 122.
	Changed to 2nd No. 104.
Formerly 1st No. 101.	Sold to Evansville & Indianapolis R. R., Feb. 1917. $8,500.
	Sold to Southern I. & E. Co., June 1917.
	Sold S. I. & E. Co., June 1917.
Formerly 1st No. 111.	
Formerly S. V. No. 1.	
Formerly S. V. 2nd No. 2.	
See Note C.	Sold to Buffalo, Attica & Arcade R. R., 1904.
See Note D.	Scrapped.
See Note D.	Scrapped.
See Note D.	Scrapped.
	Went to Goodyear Lumber Co.
	Scrapped Nov. 1929.
	Scrapped Oct. 1929.
	To W. & B. R. R., Dec. 1916, $2,500.
	These five engines sold to the W. & B. R. R., Dec. 1916, $2,500 each.
	Renumbered Baltimore & Ohio Nos. 3100 to 3106 incl., and still on hand in service.
	Renumbered B. & O. Nos. 3107 to 3117 and still in service.
	Renumbered B. & O. Nos. 3118 to 3120 and still in service.
	Sold to W. & B. R. R.
	Sold to W. & B. R. R.
	Renumbered B. & O. No. 3121 and still in service.
	B. & O. No. 3122 in service.
	B. & O. Nos. 3123 to 3132 incl. and still in service.
	B. & O. Nos. 3133 to 3142 incl. and still in service.

112	Baldwin	1895	14411	2-8-0	21x26			Former
113	Baldwin	1901	18892	2-8-0	22x26			
114	Baldwin	1901	18893	2-8-0	22x26			
1st 121	Brooks	1899		2-8-0	20x28	55"		
1st 122	Brooks	1894	2412	4-6-0	19x24	55"	132,000	Former
1st 123				2-6-0				Former
1st 124	Baldwin	1888	9121	2-8-0	20x24	46"		Former
1st 131	P.W.&B.R.R.	1873		4-4-0	16x24	66"	64,450	See No
1st 132	Erie R. R.	1881	Erie 144	4-4-0	18x22	62"	77,000	See No
1st 133	Erie R. R.	1882	Erie 155	4-4-0	18x22	62"	77,000	See No
1st 134	Erie R. R.	1881	Erie 238	4-4-0	18x22	62"	77,000	See No
1st 150	Lima	1901		Shay-gear				
115	Brooks	1903	26608	2-8-0	20x28	51"	167,200	
116	Brooks	1903	26609	2-8-0	20x28	51"	167,200	
117	Brooks	1903	26511	2-8-0	20x28	51"	167,200	
118 to 122 inclusive	Brooks	1903	27796 to 27800 incl.	2-8-0	20x28	51"	167,200	
123 to 129 inclusive	Brooks	1904–5	29184 to 29190 incl.	2-8-0	21x28	51"	184,800	
130 to 140 inclusive	Brooks	1905–6	30750 to 30760 incl.	2-8-0	21x28	51"	184,800	
141 to 143 inclusive	Brooks	1906	40865 to 40867 incl.	2-8-0	21x28	51"	184,800	
144 & 145	Brooks	1907	42272–3	2-8-0	21x28	51"	184,800	
146	Brooks	1907	42379	2-8-0	21x28	51"	184,800	
147	Brooks	1907	42380	2-8-0	21x28	51"	184,800	
148	Brooks	1907	42276	2-8-0	21x28	51"	184,800	
149 to 158 inclusive	Pittsburgh	1907	44529 to 44538 incl.	2-8-0	21x28	51"	184,800	
159 to 168 inclusive	Brooks	1908	44765 to 44774 incl.	2-8-0	21x28	51"	188,000	
265	Baldwin	1895	14405	4-4-0	18x24			Built by with ro B. & S.
266	Baldwin	1893	13804	4-4-0	19x24		106,800	Purchas York & Phillips
271	Brooks	1903	27794	4-4-2	19x26	69"	150,000	Origina
272	Brooks	1903	27795	4-4-2	19x26	69"	150,000	Origina
273	Schenectady	1904	29181	4-4-2	19x26	69"	150,000	Original
274	Schenectady	1904	29182	4-4-2	19x26	69"	150,000	Original
275	Schenectady	1904	29183	4-4-2	19x28	69"	150,000	Origina
276	Baldwin	1905	25666	4-4-0	19x26	69"	143,200	Origina
277	Baldwin	1905	25685	4-4-0	19x26	69"	143,200	Origina
278	Baldwin	1905	25789	4-4-0	19x26	73"	143,200	Purchas their N

The first year the S. V. was in operation they had two locomotives which they leas constructed by the New York Locomotive Works at Rome, N. Y., and were returne

Note A. It would seem that this engine was formerly Boston, Hoosac Tunnel & Dickson, that he ran it a number of months and that it came from either the D. & H be perfectly clear on the subject; he had relatives living in Mechanicsville, visited about. The D. & H. records have been carefully checked but nothing can be found about this time; it was a Dickson. A good photograph of this engine which I have, ta smokebox door and the figure "5" seems to be still there. This engine was off the

Note B. There is some question about engines 1st 104 and 2nd 101, and it is possible are not clear on these two. Some of the older employes say that 2nd 101 was a seco new and later renumbered. I am inclined to agree with the latter group.. Mr. G dated June 30, 1895, states the company owns ten consolidation type locomotives.

Note C. 1st 131 was acquired in 1895 when the B. & S. purchased the Wellsville, C have purchased this engine second-hand from the Philadelphia, Wilmington & Baltim

Note D. These old Erie engines were acquired by the B. & S. when it took over the A when the A. & P. was widened into standard gauge. The three were constructed a Railroad Company.

Note E. Nos. 271 and 272 were sold to the New Orleans Great Northern Railroad (a from the N. O. G. N. in October 1906 for $10,000 each.

Note F. Many of the numbers missing from the above roster previous to 100 were as in the historical article above. The only one which was ever used in yard and ma

Note G. The following locomotive numbers were never used: 169 to 264 inclusive; 2 to 177 inclusive never ran as such but were immediately renumbered upon receipt

Formerly 1st No. 101.	Sold to Evansville & Indianapolis R. R., Feb. 1917, $8,500.
	Sold to Southern I. & E. Co., June 1917.
	Sold S. I. & E. Co., June 1917.
Formerly 1st No. 111.	
Formerly S. V. No. 1.	
Formerly S. V. 2nd No. 2.	
See Note C.	Sold to Buffalo, Attica & Arcade R. R., 1904.
See Note D.	Scrapped.
See Note D.	Scrapped.
See Note D.	Scrapped.
	Went to Goodyear Lumber Co.
	Scrapped Nov. 1929.
	Scrapped Oct. 1929.
	To W. & B. R. R., Dec. 1916, $2,500.
	These five engines sold to the W. & B. R. R., Dec. 1916, $2,500 each.
	Renumbered Baltimore & Ohio Nos. 3100 to 3106 incl., and still on hand in service.
	Renumbered B. & O. Nos. 3107 to 3117 and still in service.
	Renumbered B. & O. Nos. 3118 to 3120 and still in service.
	Sold to W. & B. R. R.
	Sold to W. & B. R. R.
	Renumbered B. & O. No. 3121 and still in service.
	B. & O. No. 3122 in service.
	B. & O. Nos. 3123 to 3132 incl. and still in service.
	B. & O. Nos. 3133 to 3142 incl. and still in service.
Built by Baldwin for W. J. Holman with road No. 1; later purchased by B. & S. from him.	Sold to Southern I. & E. Co., May 1917 for $1,400.
Purchased second-hand from New York & Pittsburgh Central R. R. Co., Phillipsburg, Pa., in Nov. 1903.	Sold during World War.
Originally numbered 171.	Scrapped June 1929.
Originally numbered 172.	B. & O. No. 1486 and in service.
Originally numbered 173.	Scrapped Aug. 1929.
Originally numbered 174.	B. & O. No. 1484 and in service.
Originally numbered 175.	B. & O. No. 1485 and in service.
Originally numbered 176.	Sold to Toronto, Hamilton & Buffalo Ry. as their No. 14 in Oct. 1917.
Originally numbered 177.	T. H. & B. No. 15, Oct. 1917.
Purchased from East Louisiana R. R., their No. 102.	T. H. & B. No. 16, Oct. 1917.

they leased from the Western New York & Pennsylvania R. R. Both were
e returned to the W. N. Y. & P. in 1886.
unnel & Western No. 5. Mr. Mitchell told me before he died that it was a
he D. & H. or the B. H. T. & W at Mechanicsville, N. Y. His mind seemed to
e, visited that village occasionally, and apparently knew what he was talking
be found on such a locomotive as this. The B. H. T. & W. sold their No. 5
I have, taken during its S. V. days, looks like a Dickson number plate on the
as off the B. & S. roster by 1895 and must have been disposed of before that year.
is possible they may be one and the same engine. The present B. & O. records
as a second-hand engine; others say it was an engine which had been purchased
.. Mr. Goodyear, in his first annual report after the formation of the B. & S.,
notives. The above roster shows eleven on hand in 1895.
llsville, Coudersport & Pine Creek, as their No. 1, The W. C. & P. C. is said to
& Baltimore R. R., as their No. 58.
over the A. & P. The latter company purchased them (Nov. 1893) second-hand
nstructed at the Susquehanna shops of the old New York, Lake Erie & Western

ailroad (a Goodyear controlled company) in March 1905 and purchased back

00 were assigned to the Shay-gear engines built by Lima, which are referred to
rd and main line service was No. 150, and consequently it is included in the roster.
nclusive; 267 to 270 inclusive. The engines which were originally numbered 171
n receipt from the builders.

railroad, and in 1894 and 5 was general manager of the Darien and Western Railroad of Georgia. In 1896 he was appointed a member of the Board of Railroad Commissioners of New York State by Governor Frank S. Black and served in that capacity twelve years. At the time of his death, in Owego, January 24, 1918, he was president of the Waverly, Sayre and Athens Traction Company.

William W. Atwood was born near Big Flats, N. Y., in 1853. He started as a boy tending the pump engine which fed water to the tank on the Erie railroad in that village. Later he was telegraph operator for the Erie at Addison until about 1879. He then went to the Lackawanna railroad as agent at Weverly when the road was being put through. He left that position in 1888 to go to Wellsville as superintendent of the Bradford, Eldred and Cuba railroad, one of Senator Platt's narrow gauge lines in western New York. From 1892 to 1896 he was superintendent of the Middlesex Valley railroad (now the Lehigh Valley's Naples branch) with headquarters at Geneva. Then to Addison as superintendent of the Addison and Pennsylvania railway, in place of Frank M. Baker, continuing there a short while after that line was absorbed by the Buffalo and Susquehanna. In 1900 he went to the Long Island railroad at Long Island City as assistant to the general traffic manager. When the Long Island railroad became a part of the Pennsylvania system Mr. Atwood left that company and joined the Brooklyn Elevated Railway Company, September 1, 1903, as trainmaster on the Eastern Division when the lines were operated by steam power. Shortly thereafter the road was changed from steam to electric. The larger part of this construction work, and also the incidental work of rebuilding the storage yards and providing additional terminals, was completed when Mr. Atwood was trainmaster of the division. This reconstruction work created many unique problems for the operating officials, but due to his many years of activity as a builder and operator of steam railroads, Mr. Atwood proved equal to them all. April 1, 1910 he was appointed supervisor of the Record Branch of the Transportation Department and remained in that position until he was named president of the Employees' Benefit Association and secretary of the Board of Pensions October 15, 1921. He retired on pension July 1, 1933 and at this writing (November 1937) resides with his son, Elbert C. Atwood, at 461 Washington Avenue, Brooklyn, N. Y.

Edward B. Bryant, senior locomotive engineer of the Addison and Northern Pennsylvania railway, was born in Jersey City, N. J., August 16, 1863 of New England parents. His father was chief clerk for the master mechanic of the Erie in Jersey City and his grandfather, on his mother's side, was, at that time, master mechanic for the same road at Hornellsville, N. Y. The grandfather was later associated with Mr. Horatio Brooks in the Brooks Locomotive Works at Dunkirk. An ancestor on Mr. Bryant's mother's side was Isaac Smith, a partner in the firm of Smith and King, locomotive builders of Lowell, Mass.

When Mr. Bryant's father retired from the Erie he returned to Boston, where he died in 1867. Mrs. Bryant remarried in 1879 and with her husband, who was a carpenter, went to Hornellsville to live where

her father was master mechanic and her four brothers were engineers on the New York, Lake Erie and Western railroad.

It was natural that Edward should follow the railroad and in 1880 he got a job as brakeman on the Erie at Attica, the understanding being that due to his youth he should not be asked to couple cars, an extremely hazardous task in those days before the automatic coupler. He worked at this only a short time when he was offered a job as fireman on the Tonawanda Valley and Cuba. He was soon promoted to engineer. In September 1882 he went to the Addison and Northern Pennsylvania railway as engineer and remained in that employment until March 1885.

In the spring of 1885 Mr. Bryant went to St. Paul and got a job firing on the Northern Pacific. November 1885 he went to work for the Minneapolis and St. Louis as a fireman, later being promoted to night engine house foreman and then to the road as engineer. In June 1886 Mr. Bryant secured a job at Horton, Kansas, as a fireman on the Chicago, Kansas and Nebraska (Rock Island). A year later he was promoted to engineer and continued in that service.

In 1899 Mr. Bryant's old boss on the Minneapolis and St. Louis, Mr. Truesdale, who had become vice president of the Delaware, Lackawanna and Western, offered him a position as road foreman of engines. When he came east to take it he was given the choice of that position or one as engine foreman at Port Morris, N. J., and, longing for a spell of home life, he took the latter, starting work November 1, 1899. In January 1904 he started the development of the new engine terminal at Secaucus, N. J., and remained in charge until the following year when he was made general superintendent of the Hoboken terminal. Remaining here until July 1909 he was made general mechanical foreman of the division with headquarters at Utica. He was retired on pension January 1, 1934 and now resides at Somerville, Mass.

Mr. Bryant has been most helpful to me in the preparation of the history of the A. & N. P., furnishing me with the original time tables of that road, old passes, forms, photographs, etc., and the society is greatly indebted to him.

During the course of my travels while in the preparation of this article I was privileged to meet and converse with the following of the older men in the B. and S. and the A. and P. service:

William C. Darbyshire, East Aurora, N. Y. Now past 90 years of age. He was the senior locomotive engineer on the Sinnemahoning Valley. Born in England, he came to the United States as a young man and commenced life with the Pennsylvania railroad. Upon the formation of the S. V. he was employed as that company's first engineer, running a dummy logging engine and the early Lima locomotives. He was in continuous main line service, principally passenger, up to the time of his retirement.

James B. Mitchell, Austin, Pa. He was the S. V.'s second engineer, following Mr. Darbyshire in a few weeks. He came from the Lake Shore and Michigan Southern. Most of his later years were in passenger service, retiring on pension several years ago. I had long talks with him in his home in Austin in May and June 1937. He had saved all the

time tables of the B. & S. from the time of its formation until his retirement, which he gave to me and they have been very helpful in this writing. He died in July 1937, past eighty years of age.

Edwin D. Davis, Galeton, Pa. He commenced as fireman with the S. V., a few years before the formation of the B. & S., when the company had but four locomotives. He lost an arm while an engineer necessitating his taking a position in the stock department of the company at Galeton. In September 1937 he was retired under the Railroad Retirement Act.

Thomas J. Elmer, East Aurora, N. Y. Mr. Elmer commenced with the S. V. as a clerk in the office at Austin, working his way up, step by step until, with the break-up of the B. & S. system he had reached the position of auditor of all the Goodyear interests. He is now retired. He has furnished me with copies of all the annual reports from 1895 on, maps and other literature from which much of the information appearing here has been taken.

Thomas H. Nanney, Galeton, Pa. He was master mechanic of the B. & S., and with the advent of B. & O. control his title was changed to general foreman, in charge of the locomotive and car shops. He has furnished me with much motive power data. Retired under the Railroad Retirement Act in the autumn of 1937.

Henry H. Gardiner, Buffalo, N. Y. Mentioned above as traffc manager of the B. & S. Is now president of the Shawmut Coal Company of Boston, a man of wealth and position in the business world. He told me that at one time during his service with the B. & S. Mr. Goodyear took him to a high point on the mountain near Keating Summit and said that that was the spot he stood on in 1885 when he purchased all the forest land he could see for miles and miles.

Charles W. Goodyear, Jr., Buffalo, N. Y. Mr. Goodyear is now president of the Great Southern Lumber Company of Louisiana, one of the interests of his father and uncle. He has encouraged me greatly in this undertaking.

Fred D. Sutliff, Addison, N. Y. Now a merchant in that village. Worked on the A. & P. on and off as a young man when his father, Hiram B. Sutliff, was a conductor. He has searched high and low through the village for material for this history.

Charles G. Cook, Addison, N. Y. He is now the senior engineer on the B. & S. division, assigned to the passenger run between Addison and Galeton, and has given me much valuable information on the old days on the road.

Dan J. Colbert, Addison, N. Y. Now retired. Was operator and agent in the Addison depot and has prepared material on the history of the A. & P.

George D. Reynard, Galeton, Pa. He was appointed agent at Cross Fork when that branch was built. It was then a wilderness. The B. & S. built a home for him next to the depot. Gradually he worked his way up to be superintendent of the B. & S. R. R. corporation. When the B. & O. took over the railroad his title was changed to assistant superintendent. He is a man of ability and excellent character.

James H. Doyle, Galeton, Pa. Mr. Doyle commenced as a brakeman at the very beginning of the S. V., helping to lay rails between Keating Summit and Austin. By fate of circumstance he was conductor of the work train in 1936 which removed the rails from this same section when that portion of the road was abandoned. He is now freight conductor working out of Galeton.

Delbert Schutt, Galeton, Pa. Now retired. A conductor on the A. & P., finishing his service with the B. & S.

Lawrence R. Kelly, Galeton, Pa. One of the original S. V. engine crews, retiring on pension as an engineer a few years ago.

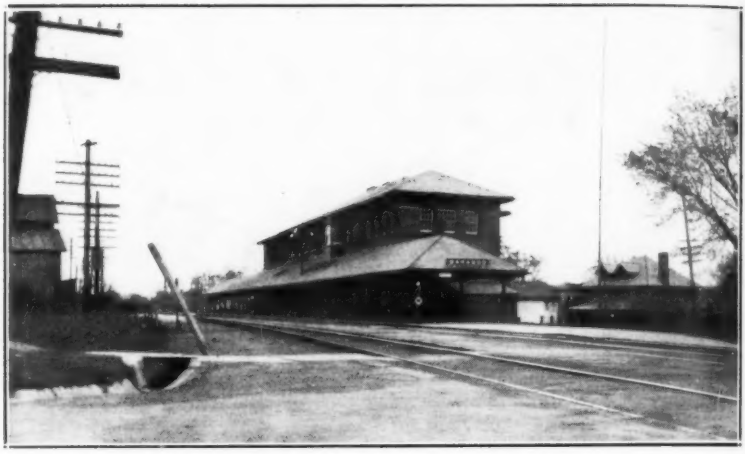
Edward A. Lacy, Galeton, Pa. An old B. & S. man. During the days of control by the B. & S. corporation he was road foreman of engines and has a good memory of the older equipment. Is now engineer on the way freight between Galeton and Addison.

Charles Spoor, Galeton, Pa. Was Master car builder on the A. & P., and continued as such with the B. & S. Retired on pension in September 1937.

Thomas F. Lynch and his wife, Iva Lynch, Buffalo, N. Y. Mr. Lynch was an engineer on the A. & P. and his wife a telegraph operator on the same road. After marriage she relinquished her position and he remained until the break-up of the B. & S. system. He is now stationary engineer in a bank building in Buffalo.

I found all of these people to be of the highest type, willing and anxious to be of assistance in this work and, incidentally, all of them spoke in the highest terms of Mr. Goodyear. It was very noticeable that in their homes nearly every one of them had a photograph of him. He was their idol!

Before closing this narrative I must mention Charles L. Miller, train dispatcher of the A. & P. He is now retired and lives in Taunton, Mass. Mr. Miller sent me his collection of photographs and has given me his remembrances of the old days. He left the service shortly after the B. & S. took over the line of the A. & P.



C. & N. W. Station at Baraboo, Wis., once the home of the Division Offices.

Bridge over Lake Wisconsin north of Okee.

A Brief History of the North Western's Madison Division—The Baraboo Air Line

By Alden E. Miller

This is a story of the coming of the railroad to Reedsburg and the upper Baraboo Valley in Wisconsin. Colonel S. V. R. Ableman, most active, perhaps, of all men of the Upper Baraboo Valley, in his efforts to get a railroad through the valley, was a pioneer of Excelsior, father of the City of Ableman, Wisconsin. Strong encouragements had been given out at Milwaukee, when negotiations for a railroad right-of-way were first begun by the Milwaukee & St. Paul Railway Company (now CMSTP&P), which only ended in disappointments when that company chose another route further north.

The great need of a railroad had long been felt. The richness of the Baraboo valley was building up villages elsewhere, because there were no good means of transportation at home. At an early date Col. Ableman had settled at the "Narrows" thinking that it was a point through which a railroad must pass some day. He was greatly disappointed at the decision of the M&StP road, and thenceforth looked to Chicago as the point from which the road must eventually emanate. In this belief he never lost faith. His ready and able pen often called attention of the capitalists to this route. He made stirring appeals through the "Baraboo Republic" during the fall and winter of 1869-70, and to the people of the upper Baraboo Valley. The result of these appeals was a meeting favorable to the project in December, 1869, at the Court House. So earnest were the people that, in spite of inclement weather then prevailing, the courtroom was filled to overflowing.

Col. Ableman, who was a general favorite of a crowd, was elected chairman of the meeting without a dissenting voice, and upon taking the chair, made an able speech, showing the necessity and feasibility of having a railroad through the valley, claiming that if the people put themselves in the right position, they might lasso the first locomotive that turned westward from Chicago. The people were so well convinced that Col. Ableman, Terrell Thomas, Colonel Strong, (who was another ardent supporter of the project), T. D. Lang and Joseph Mackey were appointed a committee to see to the drafting and obtaining of a charter. The Colonel was made chairman of the committee; and soon after this he called a meeting of the said committee at his own residence which was long afterwards known as the Charter House. Here the charter was drawn for the Baraboo Air Line Railroad. This was sanctioned by the legislature March 8, 1870.

The charter officers of the road were: Col. S. V. R. Ableman, John B. Dwinnell, John F. Smith, Joseph Mackey, Charles W. Williams, T. D. Lang, B. F. Mills, Jonas Naracong, C. D. Huff, Joseph F. Sanford, Moses Young, Terrell Thomas, Col. R. M. Strong. The Baraboo Air Line Railroad Company was incorporated March 8, 1870, and acquired by the Chicago & North Western Railway Company on September 9,

1870. The "Airline" constructed no railroad. The Madison, Lodi & Baraboo Railroad was incorporated March 29, 1864, and sold to the C&NW Ry. March 10, 1871.

The railroad was then built between Baraboo and Reedsburg, and on the first day of January, 1872, the first train ran between Chicago and Reedsburg. Reedsburg records indicate the Airline Railroad operated for some time independent of any other concern, but it was finally consolidated with the C&NW RR, which soon came into full control. State of Wisconsin records indicate the Air Line was only a "paper" road.

Up to 1873 the C&NW Ry had constructed 129.10 miles of track in this vicinity, that between Syene (Madison) to Tower WJ (Winona Jct). In 1873 3.0 miles of C&NW track, Syene to South Madison, was taken up.

The annual report of the C&NW Ry for the twelfth fiscal year—June 1, 1870 to May 31, 1871 indicated in this term a charter in the interest of the North-Western road was procured from the Legislature of Wisconsin to build a connecting road between the northern end of the Beloit & Madison Railroad at Madison, and the eastern end of the La Crosse, Trempealeau & Prescott Railroad.

The road so chartered was given the corporate name of "The Baraboo Air Line Railroad." As soon as the legal steps could be taken it was consolidated with the C&NW corporation. Steps were at once taken to construct the link, of about 126 miles, that was required to form a through line from Chicago, via Madison, to LaCrosse and Winona, Minn. In the charter of the Baraboo Air Line road was a provision for a branch line "if desired, to Tomah, where connections can be effected with the West Wisconsin Railroad (now CStPM&O), now nearly completed, and thereby a new route be opened to St. Paul and the lines of the Northern Pacific Railroad."

From the fifteenth annual report of the C&NW Ry, June 1, 1873, to May 31, 1874 we find the extension of the Baraboo Air Line was finished and connected with the La Crosse, Trempeleau & Prescott road, and opened for business on September 14, 1873, through to Winona, Minn. The Winona & St. Peter road was finished to Lake Kempeska, on the bank of the Big Sioux River in Dakota, and was opened by an excursion train from Chicago, leaving on Monday, September 15, 1873. This excursion train carried a large proportion of the leading business men of Chicago.

REEDSBURG—THE EARLY RAILROAD CITY

The Baraboo Air Line, which was amended January 31, 1871, when taken over by the C&NW, was made a part of its great line and called the Madison Division. Since first built, the roadbed has been relocated so that today it is one of the finest stretches of railroad in this section of the country.

In 1875 E. F. Seaver was the Reedsburg depot agent. Since then the following persons have served in that capacity: Frank Strong, James Stewart, Frank C. Willey and a Mr. Tracy (present agent). Mr. Willey

C. &. N. W. Station at La Valle, Wis. This point was reached by the successors of the Baraboo Line the summer of 1873. Track at the right is Cazenovia Southern, now abandoned.

One of the original stations planned by the Baraboo Line.

served in that capacity from 1889 till 1931. In 1875 when Mr. Seaver was in charge, other men employed at that depot by the company at Reedsburg were R. E. Kahl, telegraph operator; H. P. Person, warehouse man and engineer of steam pump; John C. Lightman, section foreman; H. Auedbier, Henry Krug, Fritz Schroeder, Warren Morehouse and Warren McDougal, trackmen.

F. C. Willey, Reedsburg agent for 42 years, who retired in December, 1931, with 51 years active service, has watched the railroad grow from a single line affair, with small wood burning engines, wooden cars and coaches, to the mammoth enterprise it is today. His history with the North Western is to be envied, for he started with the road when it was a pioneer in this community, and today is running long freight trains, with huge engines, and swift passenger trains with every possible accommodation. After serving in similar capacities at Afton, Madison, and Galesville, he was made agent at Reedsburg. When "F. C.", as he is known by every person in Reedsburg, came to this place, the North Western had but a single track on this division. The freight and passenger depot were in one building, at the present site of the passenger depot now.

A freight of 20 cars those days was a big train for this division because of the several steep grades between Baraboo and Madison. All trains had to be remade at Baraboo for the pull over the bluffs and again at Dane. The engines burned wood for fuel and at each station the railroad bought cords and cords of wood from the farmers. The steam saw rigging of the road would come through at stated intervals and saw the wood into blocks. Mr. Willey, in recalling those days, tells of how the train crew would pile as much wood as possible in the tender and then run the train as fast as possible so they could get to the next station before their supply had been used up.

A big event for Reedsburg and the railroad occurred in 1898 when a double track was built through the city. From then until the new water level route through Wyeville from Milwaukee was built (1911), the local route carried the entire traffic of this region and many long freight trains went through this city.

Joseph Mackey, one of the original charter members of the old Baraboo Air Line, and later a big real estate operator in Reedsburg, through his own greed, was instrumental in forcing the C&NW interests to arrange division points elsewhere, at Baraboo and Elroy, Wis., respectively; otherwise Reedsburg might have had the large division yards, roundhouse and divisional offices and shops of the railroad. He would not deal reasonably with the North Western thus Reedsburg did not become a permanent terminal.

When the road was first built the building now used as a freight depot was erected on the site of the present passenger depot, and served as such until 1905. The old depot, at a very early date became too small to accommodate the increasing needs of the growing village; but (thanks to the wise forebearance of Mr. Willey) it was not repaired, and in 1905 Mr. Willey made application for the new depot; the application was given strict attention, and work on the construction of the

present one began. The old one was moved from its original site that season (1905), and located just west of where it now stands, (if it now stood there it would be squarely in Park Street, just south of the tracks), where it remained until South Park Street was opened some years later. The new depot was hastily erected on the old site, the foundation of which was built on a bed of thirty foot piles which were driven into the quicksand. It was a fine structure for its day, and still remains; and is the best depot within a radius of many miles. It was erected at a cost of $30,000, and was opened for public service in February, 1906. During the period of its construction the old one, re-located, was continued as the official depot.

THE MADISON DIVISION

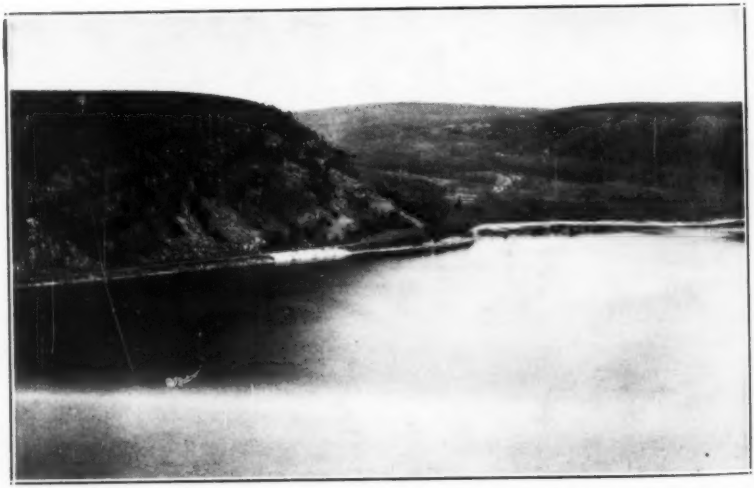
The railroad is now one of the main lines running from Chicago to Minneapolis and St. Paul. The train service is good, trains running at convenient intervals for morning and evening transportation to the nearby villages and towns.

The Madison Division of the C&NW Ry, which passes through Reedsburg, is noted for the grandeur of the scenery that greets the vision of the travelers. A few miles to the southeast of the village are the Narrows, the residence of Col. Ableman, for a counterpart of which one must look among the Rocky Mountains. The railroad winds along the river bottom, with the beautiful Baraboo River, which it crosses and recrosses, making a graceful curve between the parts of what appears to have been a line of high bluffs, or miniature mountains, parted in the center by some great convulsion of nature, the inner sides rising almost perpendicularly in ragged, rocky walls, to the height of two hundred feet or more.

The rock is mostly quartz of all colors intermingled, the waxen-white chalcedony and rose quartz being abundant. There are minute caves to be seen, and on the ledges, where a deposit of earth has been made, are trees and bushes of various kinds, lending additional beauty to the landscape. Looking down the precipices from the bluff-tops, the grandeur increases. Far below ripples the river, into which Narrows Creek empties, giving the water a broader and deeper volume. The rocks grow larger and more varied on the nearer view; the railroad track becomes only a thread, and the train of cars seems to be a mere toy.

To conclude, by way of reminiscent thought, it was Charles W. Frothingham who, as engineer, drove the old "St. Lawrence" into Baraboo on a gala day, September, 1871, when the first passenger train reached that city on the extension of the line from Madison, destined to terminate at Minneapolis. His train was composed of regular coaches with John Barker as Conductor and the passengers included Wisconsin's governor and other state officials, notables of the North Western road and other distinguished citizens. A second section, comprising open flat cars, with planked seats crosswise contained less consequential excursionists from the capital city and neighboring points. The "Kenosha" was the engine pulling this train, Jack Dunn, Conductor; Carl Anderson, Engineer. A mile east of Baraboo the trains were stopped, and pretty

Tunnel northwest of Tomah. There are four tunnels within the triangle bounded by Sparta, Tomah and Elroy, constructed 1873-5, longest nearly three-fourths of a mile.



Track scene south of Baraboo. The railroad followed the early valley of the Wisconsin River.

girls came aboard, decorating the locomotives and cars with flowers. Also some oratory occurred there, and then under verdant arches the train entered Baraboo, welcomed wildly by a mighty concord. Mr. Frothingham aided in building the line from Madison to Elroy and not only ran the first passenger train into Baraboo, but likewise the first that ever left Elroy, Southbound. Other locomotives built by Baldwin in 1870 were named after cities on the Madison division as—"Baraboo", "Reedsburg", "Tomah", and "Lodi", and the "Sparta" in 1872, same builder.

I am indebted to Merton Krug and his "History of Reedsburg and Upper Baraboo Valley", the Reedsburg Times, and "Yesterday and Today" a history of the C&NW Ry, for my sources of information.

THE EDITOR wishes to thank Mr. F. B. Ritzman for furnishing the photographs that accompanied this article.

Big Abandoned Railroads

By W. B. Schallek

The abandonment of some short branch line does not seem to be a very significant event, but the cumulative effect of abandonment after abandonment, going on at an average rate of a thousand miles a year for the last twenty years, is indeed significant. The combined railroad mileage of the six New England states, of New York, and of a good third of Pennsylvania, is less than that abandoned in the United States during the period 1917-1937. The astounding total of 19,072 miles of line ripped up or left to rust is a testimony of the profound economic reorganization our country has gone through in that period.

Before 1917, abandonments were so infrequent that no notice was taken of them, but since that year the tide of recession has been ceaseless. There have been three main causes of railroad abandonment:

1) Railroad booms of the 1880's and 1890's resulting, especially in the midwest, in an oversupply of trackage.

2) Exhaustion of natural resources, particularly in the mining states of Colorado and Nevada, and in the lumber states of Michigan and Georgia.

3) Most important of all, motor competition over highways often built in part through taxes paid by the very railroads that were being destroyed. A serious slump in revenue was caused during 1917 and 1918 by the rise in the cost of materials following our entry into the World War, while the accompanying rise in the price of scrap made abandonment seem very desirable to many struggling railroads.

While it is true that most of this abandonment has been in the form of short branch and spur lines belonging to the larger systems, many railroad men are not aware that at least a dozen entire railroads over one hundred miles in length have been abandoned. This article lists forty-six entire abandoned railroads over fifty miles in length, omitting all electric interurban lines and any line that was a subsidiary of some other system throughout its history. Thus the 166-mile Leavenworth, Kansas & Western, running from Leavenworth to Miltonvale, Kansas, is not included, as it was always associated with the Union Pacific or its predecessors.

The purpose of this article is simply to record the existence of all our larger abandoned railroads, in the hope that it will inspire research on their history before all trace and memory of them is obliterated. While a few of the most significant facts are recorded here, it must be remembered that only investigation on the actual site is able to furnish the background for the histories that deserve to be written of these railroads.

This article would not have been possible without the kind permission of the Simmons-Boardman Publishing Co. in allowing the author use of their transportation library in New York. The principal sources consulted were Poor's *Manual*, *The Official Guide*, *Railway Age*, and Rand-McNally's atlases. The railroads are listed in alphabetical

order. The mileage given is that operated for regular service, and does not include industrial spurs or duplicate track. The towns mentioned are those at each end of the main line or lines; the first is generally the operating headquarters.

Augusta Southern (83 miles). Augusta to Tennille, Georgia. Opened 1885 as the Augusta, Gibson & Sandersville; name changed 1893. Controlled in turn by the Southern and the Georgia & Florida.

AuSable & Northwestern (62 miles). AuSable to Comins, Michigan. Began as a public carrier in 1889, when it took over some older three-foot gage lumber lines. In 1912 it was acquired by the Detroit & Mackinac.

Boyne City, Gaylord & Alpena (Michigan) 91 miles. Opened 1896 as the Boyne City & Southeastern; name changed 1905. Originally a lumber road, it held on to some general business after the area was cut over. When a new reservoir flooded the eastern end of the main line, the owners urged the I. C. C. to force the Michigan Central to buy the road, but were not successful.

Bradford, Bordell & Kinzua (65 miles). Bradford to Smethport, Eldred and Mt. Jewett, Pennsylvania. A three-foot gage line, serving the nation's first oil field, in northern Pennsylvania. Under Erie control from 1883 to 1885. Opened from Bradford to Smethport in 1880; one branch was built to Eldred, while another from Smethport to Mt. Jewett later became the Mt. Jewett, Kinzua & Riterville. The name was changed in 1904 to Buffalo, Bradford & Kane.

Bradford, Eldred & Cuba (54 miles). Eldred, Pennsylvania, to Cuba and Wellsville, New York. Another threefoot gage line, operated jointly with the preceding road. Opened from Eldred to Ceres in 1881; the next year the road was extended to Cuba, with branches from Little Genesee to Wellsville and from Bolivar to Richburg. Through trains were operated from Bradford to Wellsville, 56 miles. The Cuba-Little Genesee line was abandoned in 1889, the rest in 1893, making probably the first large abandonment in our railroad history.

Bullfrog-Goldfield (73 miles). Beatty to Goldfield, Nevada. Opened 1906, being paralleled by the Las Vegas & Tonopah (see below). The L. V. & T. abandoned this part of its line in 1914, and used the B.-G. tracks.

Cape Girardeau Northern (104 miles). Cape Girardeau to Farmington and West Chester, Mo. Opened 1894 as the Chester, Perryville, Ste. Genevieve & Farmington. Name changed 1913 after merger with the Cape Girardeau & Chester.

Cincinnati, Bluffton & Chicago (52 miles). Portland to Huntington, Ind. Opened 1903. The proposed extension from Portland to Union City, 23 miles, would have opened the following route between Cincinnati and Chicago; Cincinati, Hamilton & Dayton to Dayton; Dayton & Union to Union City; C. B. & C to Huntington; Erie to Chicago.

Cincinnati, Georgetown & Portsmouth (69 miles). Cincinnati, to Russellville, Ohio. Opened in 1877 as the Cincinnati & Portsmouth, a three-foot gage road. Name changed in 1881. Electrified and changed to standard gage in 1902. A branch with 5' 2½" street car gage made it the only three-gage railroad in America; all three gages were used for a number of years.

Colorado, Kansas & Oklahoma (51 miles). Scott City to Winona, Kan. Opened 1911 as the Scott City Northern; name changed 1913. The next year, 1914, a contract was let for a 140-mile extension from Garden City, Kan., to Forgan, Okla., but the line was never completed, and the whole road was abandoned in 1917. Was this the shortest-lived railroad in America?

Colorado Midland (338 miles). Colorado Springs to Grand Junction, Colo. The "Pikes Peak Route," America's largest and best known abandoned railroad. This

road, 77 miles shorter than the competing Denver & Rio Grande, was built in 1887 to serve the mining camps of Leadville and Aspen, while later extensions made it a transcontinental link. Winding about the base of Pikes Peak, crossing mountain-girdled South Park, and plunging into the wildest part of the Rockies at Hell Gate Canyon, it was considered by many to be the most scenic railroad in America. Its two-mile tunnel under the Continental Divide at an elevation of over ten thousand feet was a remarkable achievement. The last run was made on August 4, 1918. The history of this road has been admirably treated by Carl F. Graves in a former bulletin of this Society. Mr. Graves gave the mileage as 335, but this omitted the three-mile branch to the coal mines at Sunlight.

Colorado Springs & Cripple Creek District (Colorado), 51 miles. Opened from Cripple Creek to Victor in 1898, to Colorado Springs in 1901. Originally controlled by the Colorado & Southern, and later by the Cripple Creek Central, a group of roads headed by the same A. E. Carlton who saved the Colorado Midland from the junk dealers in 1917. The name was changed to Cripple Creek & Colorado Springs in 1915. This was a busy road when Cripple Creek was the world's greatest gold-mining camp, but its roadbed is now used for an automobile toll road. The old advertising reads "The Cripple Creek Short Line is the most Wonderful Sightseeing Trip in America."

Dayton, Toledo & Chicago (96 miles). Dayton to Delphos, Ohio. Opened in 1881 as the Dayton division of the three-foot gage Toledo, Cincinnati, & St. Louis. The parent line became the Clover Leaf district of the Nickel Plate, while the D., T. & C., after passing through a long series of reorganizations, became part of the Cincinnati, Hamilton & Dayton. John Ringling, the circus owner, operated it as an independent line from 1918 until its abandonment in 1922.

Denver, South Park & Pacific (328 miles). Denver to Leadville and Gunnison, Colo. A three-foot gage line opened in 1874, providing the first railroad service into the mining regions of central Colorado. Trainmen used to call it "Damned Slow Pulling & Pretty Rough Riding." The original plan was for a road running through the Grand Canyon of the Colorado to the Pacific coast. The Union Pacific got control in 1889 and changed the name to Denver, Leadville & Gunnison; in 1898 it was one of the roads going into the formation of the Colorado & Southern. All that is now left is a few miles out of each of the three main terminals: Denver to Waterton, Leadville to Climax, and Gunnison to Baldwin.

Detroit, Toledo & Milwaukee (133 miles). Dundee to Allegan, Mich. Opened 1883 as the Michigan & Ohio. In 1888 it was merged with the present Cincinnati Northern to form the Cincinnati, Jackson & Mackinaw, but was separated as the D., T. & M. in 1897. In 1902 the Lake Shore & Michigan Southern leased the part between Dundee and Moscow, while the Michigan Central got the rest. The part between Battle Creek and Allegan was sold to the Michigan Railway (electric) in 1913. The Detroit, Toledo & Ironton used the eastern end of this line for its entry into Detroit before the Malinta cut-off was built.

Duluth & Northern Minnesota (80 miles). Knife River to Meredith, Minn. A lumber road, opened in 1901.

Fairchild & Northeastern (65 miles). Cleghorn to Owen, Wisc. Another lumber road, opened in 1884 as the Chicago, Fairchild & Eau Claire River. Name changed in 1898.

Findlay, Fort Wayne & Western (91 miles). Findlay, Ohio, to Fort Wayne, Ind. "The Tangent Line," supposed to be the only railroad in America without a curve. Organized in 1888 as the New York, Mahoning & Western; opened in 1889 as the American Midland, running between Findlay and Milepost 20. Probably because they were weary of rotten jokes about the name, it was changed to F., Ft. W. & W. in 1890. Through Pullmans were run to Chicago via Fort Wayne and the Pennsylvania. In 1903 the Cincinnati, Hamilton &

Dayton got control, changed the name to Cincinnati, Findlay & Fort Wayne, and built a branch to Delphos (opened 1904), to connect with the Dayton, Toledo & Chicago (see above). Independent operation was resumed in 1917.

Florida Railway (59 miles). Live Oak to Perry, Fla., paralleling the Live Oak, Perry & Gulf. Opened 1894 as the Live Oak & Gulf; name changed 1905 after consolidation with the Western Peninsula R. R.

Georgia Coast & Piedmont (107 miles). Brunswick to Collins, Ga. Opened 1895 as the Darien & Western; name changed 1906, abandoned 1919. The Collins & Glennville still operates part of this line.

Hartford & Connecticut Western (124 miles). Hartford, Conn., and Springfield, Mass. to Rhinecliff, N. Y. Opened to State Line, N. Y., in 1871 to provide a short line from Hartford to the west via Rhinecliff, Beacon or Poughkeepsie, and the New York Central. In 1875 the Rhinebeck & Connecticut bridged the gap via Rhinecliff and was bought by the H. & C. W. in 1881. In 1889 it was leased by the Central New England & Western. "The Poughkeepsie Bridge Route," was the main line for New England traffic using the Poughkeepsie gateway. Both roads were leased by the Philadelphia, Reading & New England in 1892, becoming part of the ambitious scheme of the Reading to gain entrance to New England. When this scheme collapsed in 1899, it became part of the Central New England. The New Haven bought control in 1904, diverted bridge traffic over the Danbury line to New Haven, and left the H. & C. W. as an unprofitable branch line. (See also below under "Newburgh, Dutchess & Connecticut.")

Iowa & St. Louis (52 miles). Sedan, Iowa, to Elmer, Mo. Opened 1902 as part of a projected line from St. Louis to Sioux City, passing through the north Missouri coal fields. Later it was leased by the C., B. & Q.

Kansas City, Clinton & Springfield (155 miles). Olathe, Kan., to Ash Grove, Mo. Opened in 1885 to parallel the 'Frisco between Kansas City and Springfield. However, it was in the awkward position of having to use its rival's tracks at either end of its own line, and was eventually aborbed by the larger road.

Kansas City Northwestern (172 miles, including 11 miles trackage over the St. Joseph & Grand Island between Seneca and Axtell). Kansas City, Kan., to Virginia, Neb. Opened 1888 as the Kansas City, Wyandotte & Northwestern; name changed 1893. For several years it was under Missouri Pacific control. Leavenworth, Kan., is entered by four abandoned railroads: The Leavenworth branch of the K. C. N. W., the Leavenworth & Topeka, the Leavenworth, Kansas & Western branch of the Union Pacific, and the Leavenworth branch of the Santa Fe. Probably this gives the City the doubtful honor of being served by more defunct railroads than any other town in the world.

Kansas City & Memphis (59 miles). Rogers to Siloam Springs, Ark. "The Fruit Belt Route," originally projected from Harrison, Ark., to Wagoner, Okla Opened 1908 as the Arkansas, Oklahoma & Western; name changed 1911.

Las Vegas & Tonopah (197 miles). Las Vegas to Goldfield, Nev. This line served the rich gold and silver region of southern Nevada, scene of "the West's last wild mining days." Built by Senator W. A. Clark in 1906 to connect his mining properties with his San Pedro, Los Angeles & Salt Lake railroad. A wild railroad-building race was held between the L. V. & T. and the Tonopah & Tidewater. The line between Beatty and Goldfield was abandoned in 1914, through service being maintained over the Bullfrog-Goldfield (see above). When the rest of the line was abandoned in 1917, the rails are reported to have been sold to Russia at a price higher than the original cost. In the middle of the desert stands the elaborate union depot of Rhyolite, once served by three railroads (Las Vegas & Tonopah, Bullfrog-Goldfield, Tonopah & Tidewater) now served by none.

Lorain, Ashland & Southern (68 miles). Lorain to Custaloga, Ohio. Opened 1899 as the Ashland & Wooster; became the Ashland & Western in 1904, and the L., A. & S. in 1913. Controlled by the Pennsylvania, in an attempt to share some of the U. S. Steel traffic at Lorain with the New York Central.

Louisville & Atlantic (79 miles). Frankfort to Irvine, Ky. Opened 1891 as the Richmond, Nicholasville, Irvine & Beattyville; name changed 1899. Later absorbed by the Louisville & Nashville.

Macon & Birmingham (97 miles). Sofkee to LaGrange, Ga. Opened 1891. One of the first gas-electric trains in the country was placed on this road in 1915. While engaged in ripping up the rails of this line, the author of "I am a Fugitive from a Chain Gang" made his escape.

Manistee & Grand Rapids (72 miles). Manistee to Marion, Mich. Opened 1893. In 1914 the name was changed to Michigan East & West.

Marshall & East Texas (92 miles). Marshall to Winnsboro, Texas. Opened 1886 as the Marshall, Paris & Northwestern. Became the Paris, Marshall & Sabine Pass in 1887, the Texas Southern in 1897, and the Marshall & East Texas in 1908. The Marshall, Elysian Fields & Southeastern still operates the 17-mile branch to Elysian Fields.

Memphis, Dallas & Gulf (132 miles, including 18 miles trackage over the Missouri Pacific between Shawmut and Glenwood). Hot Springs to Ashdown, Ark., serving the rich mineral region of southwest Arkansas. Opened 1907 as the Memphis, Paris & Gulf; name changed 1910. Parts of this line are still operated by the Graysonia, Nashville & Ashdown and the Murfreesboro-Nashville.

Minneapolis & Rainy River (63 miles). Deer River to Craig, Minn. A lumber road, chartered in 1904.

Newburg, Dutchess & Connecticut (68 miles). Beacon to Millertown, N. Y. Originally the Dutchess & Columbia, name changed in 1877. The Hartford & Connecticut Western (see above) attempted to reach Fishkill via Millerton and a lease of the Dutchess & Columbia in 1868. The Boston, Hartford & Erie was building between Hartford and Fishkill via Danbury at the same time, and leased the D. & C. to forestall its rival. The iron ore along its route was also an attraction. In 1872 the line was leased by the New York, Boston & Montreal, to form part of a new line from New York to Montreal using the New York & Northern, Dutchess & Columbia, Lebanon Valley, and Bennington & Rutland. The next year, 1873, the scheme collapsed. In 1904 the N. D. & C. was merged with the Central New England. The New Haven still operates 12 miles between Beacon and Hopewell Junction.

New York & Pennsylvania (57 miles). Canisteo to Ceres, N. Y. Opened 1894 from Genesee to Oswayo as the Olean, Oswayo & Eastern. The N. Y. & Penn. was opened from Genesee to Rexville, 14 miles, in 1895, and absorbed the O., O. & E. the next year.

North Pacific Coast (95 miles). Sausalito to Cazadero, Calif. A three-foot gage line. Opened 1877; name changed to North Shore Railroad in 1902. In 1907 it was one of the roads in the consolidation that formed the Northwestern Pacific. The N. W. P. still operates 23 miles of the old N. P. C., including the Sausalito terminal.

Northern Adirondack (56 miles). Moira to Tupper Lake, N. Y., with branch to Black Rapids. Opened from Moira to St. Regis Falls in 1883, to Tupper Lake in 1890. Name changed in 1895 to Northern New York R. R. In 1897 it was acquired by the New York & Ottawa, which was in turn acquired by the New York Central in 1905.

Northwestern of South Carolina (76 miles). St. Paul to Camden, S. C. Opened 1892 as the Wilson & Summerton; obtained Division "C" of the Charleston, Sumter & Northern, from Merriam to Sumter, in 1895. Name changed to N. W. of S. C. in 1899. Later it was controlled by the Atlantic Coast Line.

Ocean Shore (53 miles). San Francisco to Tunitas, Calif. Originally planned to extend along the cliffs from San Francisco to Santa Cruz, 92 miles. Opened 1907. After 38 miles were built from the north and 15 from the south, the line was abandoned, but as late as 1936 plans of reviving the project were discussed.

Ocilla Southern (110 miles, including 18 miles trackage over the Hawkinsville & Florida Southern from Hawkinsville to Pope City). Perry to Nashville, Ga. Opened between Ocilla and Nashville in 1908; extended northward through acquisition of other lumber lines, including the Fitzgerald-Ocilla and the Hawkinsville & Western. In 1919 it planned to extend north to Macon and Atlanta, and south to Jacksonville. Shortly thereafter, it was abandoned.

Ohio River & Western (112 miles). Bellaire to Zanesville, Ohio. A three-foot gage line, the last in Ohio. Opened 1879 as the Bellaire Southwestern. Became the Bellaire, Zanesville & Cincinnati in 1882, and the O. R. & W. ("Old Rusty & Wobbly") in 1903. A former fireman writes: "The track was awful crooked, but we did have some straight stretches, and could hit up 25 miles an hour. The line was owned by local farmers, who kept it in pretty good shape. Then the Pennsy bought it to get hold of some coal veins under the right-of-way. First they spent thousands of dollars rebuilding the road. Then as soon as they were finished, they started to tear it up. The old rolling stock is scattered all over the hills, being used as lunch wagons, filling stations and hen houses."

Sandy River & Rangeley Lakes (77 miles). Farmington to Rangeley and Bigelow, Maine. The famous two-foot gage line, noted for its sturdy locomotives and luxurious parlor cars. The pioneer road in this part of the state, it once had an extensive tourist and lumber traffic. Opened 1879 as the Sandy River, running from Farmington to Phillips. Name changed in 1908 after merger with the Franklin & Megantic, running from Strong to Bigelow, and the Phillips & Rangeley.

San Joaquin & Eastern (56 miles). El Prado to Big Creek, Calif. A real mountain railroad, serving a power plant of the Southern California Edison Company. Opened in 1912.

Tidewater & Western (92 miles). Bermuda Hundred to Farmville, Va., "The Clover Leaf Route," opened 1853 as the five-foot gage Clover Hill Railway, running from Chester to Winterpock, 18 miles, and intended to bring coal from the Clover Hill pits down to the James River. The rolling stock was equipped with vacuum brakes. In 1877 it became the Bright Hope Railway, and in 1882 was changed to three-foot gage, supposedly to prevent other lines from running away with its rolling stock. In the same year the line was extended from Chester to Bermuda Hundred, 10 miles. In 1890 it was absorbed by the Farmville & Powhattan, which built a new 63-mile line from Coalboro to Farmville, and in 1905 became the Tidewater & Western. Train crews were supposed to pay more attention to blackberry bushes along the track than to the timetable. "After all," they said, "when you leave Farmville you're not going anywhere, so why rush?"

Wellsville & Buffalo (90 miles). Wellsville to Buffalo, New York. Constructed in 1902 as the Buffalo branch of the Buffalo & Susquehanna in an effort to develop an independent outlet to the west for Pennsylvania coal. Operated independently after 1916.

Wiscasset, Waterville & Farmington (57 miles). Wiscasset to Winslow and Albion, Maine. Another two-foot gage line. After years of planning, this road was opened in 1895 as the Wiscasset & Quebec, with the grand scheme of running clear to Quebec, and making Wiscasset a great seaport. When this dream was

shattered in 1901 by failure to get permission to cross the Main Central at Burnham Junction, the name was changed and a line started to connect with the Sandy River (see above). Had this been successful, both narrow-gage lines might still be giving the Maine Central serious competition. The 15-mile line from Albion to Burnham Junction, built but never operated, is not included in the above mileage.

Wisconsin & Michigan (115 miles). Peshtigo Harbor to Constine, Wisc., and Iron Mountain, Mich. Opened 1895. Although operated primarily for iron ore, it was also used as a route by which through freight avoided Chicago terminals. Connections were made with Ann Arbor car ferries at Menominee for Toledo, and with the Soo line at Faithorn Junction for Minneapolis.

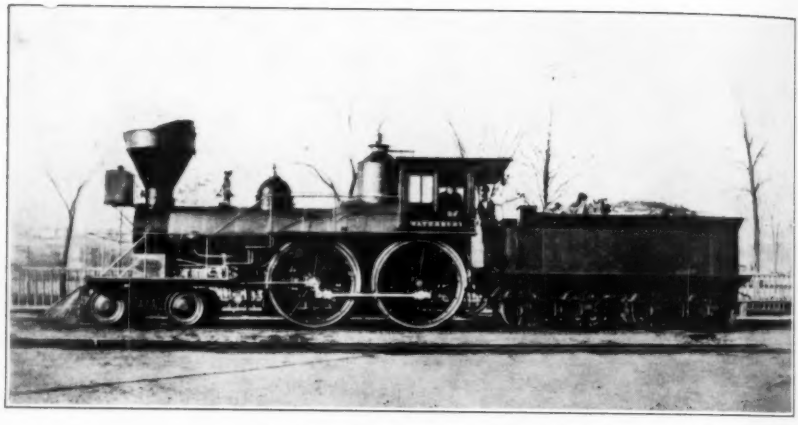
There seems to be no end in sight to the succession of large abandonments. Among the applications for abandonment on file during the summer of 1938 are the following:

Eureka-Nevada (88 miles). Eureka to Palisade, Nev. A three-foot gage line, organized 1873 as the Eureka & Palisade, connecting the mines at Eureka with the Central Pacific.

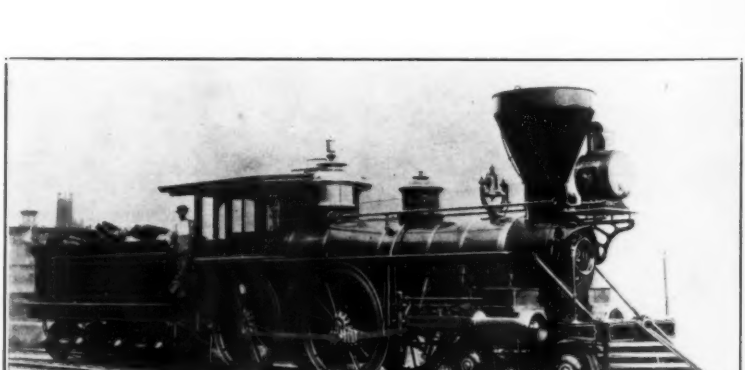
Nevada Central (92 miles). Austin to Battle Mountain, Nev. Another three-foot gage line, organized 1879 to connect the Austin mines with the Cen. Pac.

Quincy, Omaha & Kansas City (249 miles). Quincy, Ill., to Kansas City, Mo. The 147 miles of the Wabash between Pattonsburg and Omaha was originally part of the Q., O. & K. C. Since 1902 it has been controlled by the Burlington.

Many railroad men feel that the place of short line and secondary railroads has been permanently taken by highway vehicles. Railroads, they feel, should concentrate all their efforts on the positions where they are unassailable by highway competition: that is, on the heavy traffic routes. The railroad system of the future, as they see it, will consist only of the present main lines. It is up to the railroad historians of today to make sure that our descendants will have an adequate record of the time when hardly a county of the United States was without a railroad.



H. P. & F. "Waterbury"—Mason, 1854
John W. Philbrick, Engineer; Charles S. Damrell, Fireman.



H. P. & F. "J. T. McManus"—Taunton, 1868.

Locomotives of the New Haven R. R.

By Charles E. Fisher

We come now to the locomotives of the

NEW YORK & NEW ENGLAND R. R.

It will be impossible in this short sketch to include all of the interesting details in connection with the history of this road. A complete account will be found in Prof. Baker's book—"The Formation of the New England Railroad Systems" and then, in our Bulletin #22 will be found a brief account of this road.

In 1847 the *Norfolk County R. R.* was incorporated in the State of Massachusetts and in May 1849, this 28 mile line was opened from Blackstone to Dedham where connections were made with the Boston & Providence R. R. for Boston. In 1849 the *Southbridge & Blackstone R. R.* was incorporated to build a line from Southbridge to Blackstone but the road was not completed by 1853. In 1850 the Midland R. R. was incorporated to build a line from South Dedham to a point on Broad or Sea Street, Boston, and this road was not completed by 1853. On Dec. 12, 1853, the above three companies were consolidated to form the *Boston & New York Central R. R.* The line from Boston to Islington was opened Jan. 1, 1855 and from Blackstone to Mechanicsville, Ct., opened in 1854. During the following decade the road earned little but deficits and in 1858 it was reorganized as the *Midland R. R. Co.* (of 1858) and again in 1861 as the *Midland Land Damage Co.* In 1863 it was again reorganized as the *Southern Midland R. R. Co.* and finally, on Sept. 8, 1863, it was deeded to the *Boston, Hartford & Erie R. R.* From 1858 to 1866, the line from Boston to Islington was not operated, the right of way overgrown with bushes and the road pretty much in a state of dilapidation.

In 1849 the State of Massachusetts incorporated the *Charles River Branch R. R.* to connect with the Boston & Worcester R. R. at Brookline and extend through Newton and Needham to Dover. By 1852 the six miles from Brookline to Newton Upper Falls had been completed and later, Feb. 17, 1883, this same line was sold by the New York & New England R. R. to the Boston & Albany R. R. to form the nucleus of the latter's Highland Circuit. In 1851 the *Charles River R. R.* was incorporated to build a line from Dover to Bellingham. In 1853 the road took over the Charles River Branch R. R. In 1846, in the State of Connecticut, was incorporated the *New York & Boston R. R.*, to build a direct line between those two cities from New Haven to Middletown and thence easterly through Windham and on to Boston. In 1853 it took over the *Woonsocket Union R. R.* and on Oct. 3, 1855, took over the Charles River R. R. The line from Needham to Medway was opened in 1862 and by 1863 they reached Woonsocket. Finally, on December 1, 1864, the road was leased to the Boston, Hartford & Erie R. R.

In 1849, in the State of Connecticut, the *Hartford, Providence & Fishkill R. R.* was incorporated uniting the Hartford & Providence with the New York & Hartford road. This road extended from Providence,

R. I. to Willimantic, Ct., 58.5 miles, opened Oct. 2, 1854, Willimantic to Hartford, Ct., 31.5 miles, opened Dec. 1, 1849, Hartford to Bristol, Ct., 17.9 miles, opened June 1, 1850 and Bristol to Waterbury, Ct., 14.7 miles, opened July 11, 1855, a total of 122.6 miles. In spite of its hopes and ambitions it went into the hands of receivers in 1858 and did not emerge from same until 1878. The road was deeded to the Boston, Hartford & Erie R. R., Aug. 28, 1863.

The *Boston, Hartford & Erie R. R.*, incorporated in Massachusetts in 1863, was an effort to construct a trunk line from Boston to connect with the large eastern roads. It was proposed to build a road from Boston to the Hudson River at Fishkill, bridge the river and continue to the coal fields of Pennsylvania. Surely a noble enterprise. Aided by the State of Massachusetts that sunk millions into this scheme the road soon became involved in the most disgraceful scandal ever witnessed in this state. The reader is invited to note the line of old, wornout locomotives with which this road started and to note the speedy change with the coming of state aid. Much valuable time was lost in disputes whether to build to New York or to the west. On Feb. 9, 1869 it leased the *Norwich & Worcester R. R.* This road, incorporated in 1836, a 71 mile road extending from Worcester, Mass. to Norwich and Allyn's Point was a valuable link in the Boston-New York rail and steamer line. The line from East Thompson to Southbridge was completed in 1867 but finally, in 1870, the trustees under the famous Berdell mortgage took possession and operated the road.

In 1873, the State of Massachusetts incorporated the *New York & New England R. R.* During the next twenty years the road acquired the *Connecticut Central R. R.*, East Hartford to Massachusetts State Line in 1880; the *Springfield & New London R. R.*, Springfield, Mass. to Ct. State Line in 1881 and the *Springfield & North-western R. R.* in Springfield, Mass., in 1885. The 34 mile line from Danbury to Hopewell Jct. was opened in 1882 and from Waterbury to Danbury in 1881. Finally, in 1882, the Hudson River was reached. In 1870, the *Hopkinton R. R.* was chartered by the State of Massachusetts to build an eleven mile railroad between Milford and Ashland, Mass. In 1884 this road was deeded to the *Milford & Woonsocket R. R.* The latter was incorporated in 1855 to build a road from Milford to Bellingham. Opened in 1868, the road was immediately leased to the Providence & Worcester R. R. and when they gave up the road at the expiration of their lease, the New York & New England leased it for ninety-nine years commencing in 1887. With this lease went the *Milford, Franklin & Providence R. R.*, Franklin to Bellingham Jct., operated by the Milford & Woonsocket R. R. from 1883-1887.

The road was in the hands of receivers from 1884-1885 and again from 1894-1895. In 1895 the road was incorporated as the *New England Railroad Co.* and on July 1, 1898, the road was leased to the New York, New Haven & Hartford R. R. for ninety-nine years.

Under the capable leadership of Mr. Charles Peter Clark, the road received its share of through business and he encouraged the local business. He established the "Washington Express," now known as the "Federal Express," as well as the "New England Limited" between

Boston and New York. Mr. Clark left the New York & New England for the New Haven and then began the steady downfall of the New York & New England. With the Boston & Albany and its western connection to the north, with the New Haven establishing its Shore Line without transfers at New London and Saybrook, the New York & New England tried to effect a New York connection but gradually these were closed. The Erie, always in financial trouble was unable to be of assistance and had a lease of the N. Y. & N. E. to the Erie been arranged, New England would have had its much wanted trunk line. Finally, in 1898, the New Haven assumed charge and thus closed the history of one of our most picturesque New England railroads.

Turning now to the locomotives, the New York & New England R. R., on account of the operating conditions, employed a wide variety of types from quite a variety of builders. Of the locomotives used by the roads prior to the formation of the Boston, Hartford & Erie, but very little is known. The Taunton records aid us in the matter of two of these roads and we find they furnished the Norfolk County R. R. with the following:

Waterford	Taunton	#25	1848	4-4-0	15x18″	60″	
Walpole	Taunton	#27	1848	4-4-0	15x18″	60″	B H & E #15
Blackston	Taunton	#28	1849	4-4-0	15x18″	60″	B H & E #13
Franklin	Taunton	#29	1849	4-4-0	15x18″	60″	B H & E #14

The "Waterford" was sold to the Northern (New York) R. R. The "Walpole" was rebuilt in the Boston & Providence R. R. Shops between 1857-59 and again rebuilt by the Hinkley Works in 1873. The "Blackstone" was rebuilt by the Taunton Works in 1858 and the "Franklin," like the "Walpole" was rebuilt by the B & P R. R. between 1857-59 and again rebuilt by George A. Haggerty of Southbridge, Mass. in 1875. The "Blackstone" and "Walpole" were sold to Messrs. Broad & Ward, Contractors and the "Franklin" was sold to the Cincinnati, Rockport & Southwestern R. R. All left the B. H. & E. in 1875.

The Taunton records indicate they furnished the following locomotives to the Southbridge & Blackstone R. R.

"Welcome Farnum"	Taunton	#149	1853	4-4-0	16x20″	72″
"Edward Crane"	Taunton	#154	1854	4-4-0	16x20″	72″
"Hamilton Willis"	Taunton	#156	1854	4-4-0	16x20″	72″

These engines, with their two steam domes, black walnut cabs, silver plated letters on the name plate with a brass border around the name, with the name of the road in gold letters on the tender, all wheels painted red throughout did not remain long on the road. The "Hamilton Willis" was taken by the Boston & Providence R. R. for payment in operating the road and for repairs on the other two engines. She was renamed "Mansfield." Where the other two engines went is a mystery.

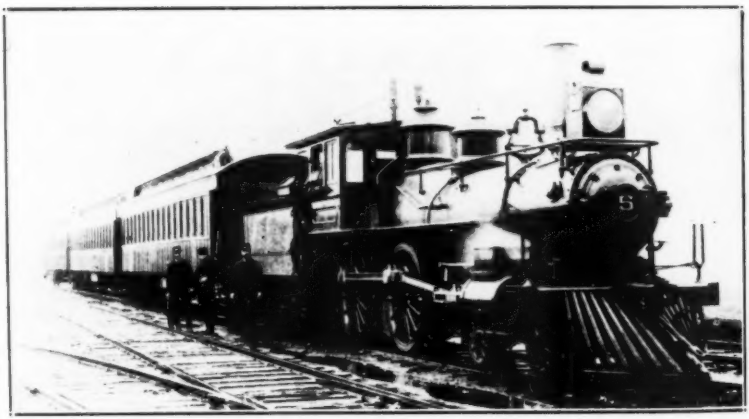
The cancellation of the lease of the Norfolk County R. R. to the Southbridge & Blackstone in 1852 kept this road out of the clutches of the other roads until the B. H. & E. R. R. was formed. In the decade that followed the road had difficulty in operating and some portions were not

even operated. Save for the fact that the Midland R. R. in 1859 purchased the old "Lowell" from the Boston & Worcester R. R., we know virtually nothing of the locomotives used during this decade.

Due to the kindness of the New Haven R. R., one of our members has been permitted to make a search through their motive power records. His efforts were rewarded by the finding of a B. H. & E. roster dated 1866 and a more motley array of second hand power the writer has never witnessed. Doubtless some of these engines saw service on the Boston & New York Central and Midland companies but the old "Lowell," renamed "Baring" after that famous London banking firm with the hopes, no doubt, of attracting capital from that country would probably have astonished some of those English investors. Mr. O. W. Bailey, from the Manchester Locomotive Works was the first Master Mechanic of the B. H. & E. and with the liberality of the "Old Bay State" soon replaced these old worn out locomotives with something better. Before starting this list which is arranged in numerical sequence of the New York & New England R. R., I want to correct an error in BULLETIN #47. B. & P. #6 "Neponset," built by G. S. Griggs was sold to the Rhode Island Locomotive Works and after rebuilding the engine, they in turn sold it to the Northern Adirondack R. R. in 1885. The "Neponset" found on the B. H. & E. was the first engine received under that name on the B. & P. R. R.

1	Hooksett	Hinkley & Drury	# 5	6-27-42	4-4-0	10½x18"	54"	
		Originally a 4-2-0 rebuilt by the Concord R. R. and brought to the road by Mr. Bailey.						BH&E # 1
1		Hinkley	——	1878	4-4-0	17x24"	63"	
901		Re 1943—Sc 1-28-13			4-4-0			
	Mattapoisett	Hinkley & Drury	# 538	10- 7-54	4-4-0	14x20"	60"	
	Rebuilt	Matfield Mfg. Co.		185-	4-4-0	14x18"	69"	
		B. H. & E. #2						
2	Resolute	Taunton	# 467	6-30-69	4-4-0	16x24"	66"	
		B. H. & E. #2						
2		Schenectady	#4762	1897	4-4-0	19x24"	73"	
902		Re 1410—Sc 10-16-26						
	Neponset	Lowell M. S.		1837	?-2-0	12x18"	60"	
		Purchased from Boston & Prov. R. R.						BH&E # 3
	Dauntless	Taunton	# 481	11-29-69	4-4-0	16x24"	54"	
		B. H. & E. #3—Taken by the TLW and sold to the A. T. & S. Fe. R. R.						
3		Rhode Island	——	1878	0-4-0	16x24"	50"	
903		Scrap 1904						
	Not Named	Hinkley & Drury	——	——	4-4-0	15x20"	54"	
		B. H. & E. #4—identity not known.						
4		McKay & Aldus	——	1868	0-4-0	14x22"	48"	
	Rebuilt	N. Y. & N. E.		1887	0-4-0	16x24"	51"	
904	Rebuilt—saddle tank switcher			1917	Re 2815—Sold 1930			
	Lincoln	Long & Norris	——	1835	?			BH&E # 5
		Purchased from Boston & Providence R. R.						
	Rebuilt	Globe Works		185-	4-4-0	14x20"	48"	
	Regulator	Taunton	# 478	10-25-69	4-4-0	16x24"	54"	
		B. H. & E. #5 Taken by the T. L. W. and sold to the Hartford & Connecticut Valley R. R.						
5	Talbot	Schenectady	# 729	1871	4-4-0	16x24"	63"	
905		Sc 1904			4-4-0			
905		Baldwin	——	1904	4-4-0	18x26"	69"	
		Re 1500—Sc 9-30-27						

B. H. & E. #18. McKay & Aldus, 1866, at Southbridge, Mass.



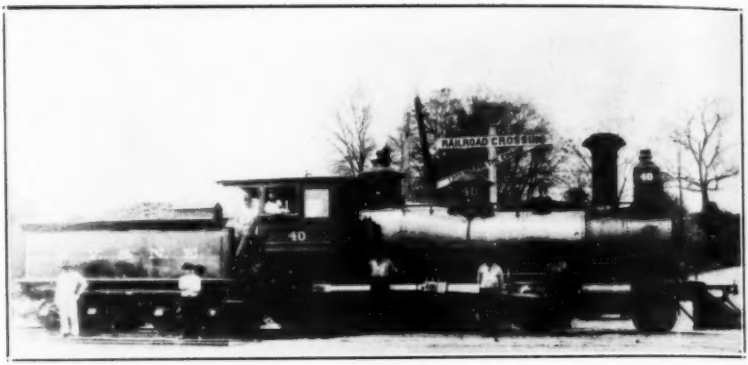
N. Y. & N. E. #5. Schenectady, 1871.

	Baring	Lowell M. S.	——	1836	2-2-0	12x18"	48"	BH&E # 6
		The "Lowell" purchased from the Boston & Dorc. R. R.						
	Trump	Hinkley	# 932	1869	4-4-0	16x24"	54"	
		B. H. & E. #6—taken by the Hinkley Works						
6	Dom Pedro	Hinkley	——	1875	4-4-0	16x24"	63"	
	Rebuilt	N. Y. & N. E.		1885	0-4-0	16x24"	50"	
906		Re 2819—Sc 6-1-24			0-4-0			
	Boston	Edw. Bury	——	1835	4-2-0	12x18"	60"	
		B. H. & E. #7—purchased from Boston & Prov. R. R.						
7	Fishkill	Schenectady	# 528	1868	4-4-0	17x24"	54"	
7		N. Y. & N. E.		1888	0-6-0	17x24"	50"	
907		Re 2705—Sc 3-6-24						
8	Rescue	Norris	#1012	1862	4-4-0	14x22"	60"	
		N. Y. & B. R. R.—Originally the "Marshall S. Rice."						
8		Hinkley	——	1880	0-4-0	15x22"	50"	
908		Re 2906—Sc 6-7-12						
9	Economy	Norris	#1013	1862	4-4-0	14x22"	60"	
		N. Y. & B. R. R.—Originally the "Hiram Allan."						
9		N. Y. & N. E.		1885	0-4-0	16x24"	50"	
909		Re 2820—Sc 12-31-25			0-4-0			
10	Pascoag	Portland	# 112	5-4-64	4-4-0	14x20"	60"	
		N. Y. & B. R. R.						
10	Onward	Schenectady	# 526	1868	4-4-0	16x22"	60"	
10	N. & W. #10	N. & W. R. R.		1889	0-4-0	16x24"	44"	
910		Re 2808—Sc 6-1923			0-4-0			
	Mercury	Hinkley & Drury	# 37	3-31-45	4-4-0	14x20"	60"	
	N. Y. & B. R. R.,	purchased from Boston & Worc. R. R., B. H. & E. #11						
11	Mercury	McKay & Aldus		1869	0-4-0	14x22"	48"	
		Renumbered N. Y. & N. E. 4.						
11		Rhode Island	# 767	1879	2-6-0	18x24"	57"	
911		Re 789—Sc 1910			2-6-0			
	Buffalo	Lowell M. S.	# 144	1854	4-4-0	12x18"	60"	
	N. Y. & B. R. R.,	purchased from Boston & Worc. R. R., B. H. & E. #12						
12	Alert	Taunton	# 455	2-25-69	4-4-0	16x22"	66"	BH&E #12
12		N. Y. & N. E.		1889	4-4-0	17x24"	63"	
912		Re 1861—Sc Feb. 1917.						
	Blackstone	Taunton	# 28	2-16-49	4-4-0	15x18"	60"	
	Norfolk County R.	R.—B. H. & E. #13						
13	Ranger	Taunton	# 459	4- 9-69	4-4-0	16x24"	66"	BH&E #13
13		Mason	# 697	4-27-83	4-4-0	17x24"	62"	
		Norwich & Worcester #13						
913		Re 1920—Sc 4-30-08.						
	Franklin	Taunton	# 29	3-24-49	4-4-0	15x18"	60"	
	Norfolk County R.	R.—B. H. & E. #14						
14	Surprise	Hinkley	# 866	1868	4-4-0	15x22"	60"	BH&E #14
14		N. Y. & N. E.		1889	4-4-0	17x24"	63"	
914		Re 1862—Sc 11-30-19.						
	Walpole	Taunton	# 27	1- 2-49	4-4-0	15x18"	60"	
	Norfolk County R.	R.—B. H. & E. #15						
15	Rebuilt	Hinkley		1873	0-4-0	15x22"	50"	
915		Scrap—1904			0-4-0			
915		Norwood Shops		1904	2-6-0	18x24"	57"	
		Re 710—Sc 2-28-25						
16	Reliance	Taunton	# 367	1865	4-4-0	16x24"	60"	BH&E #16
16		N. Y. & N. E.		1889	4-4-0	17x24"	63"	
916		Re 1863—Sc 2-1917.						
17	Hero	Taunton	# 365	1865	4-4-0	16x24"	60"	BH&E #17
17		N. Y. & N. E.		1898	4-4-0	17x24"	63"	
917		Re 1800—Sc 10-16-26.						

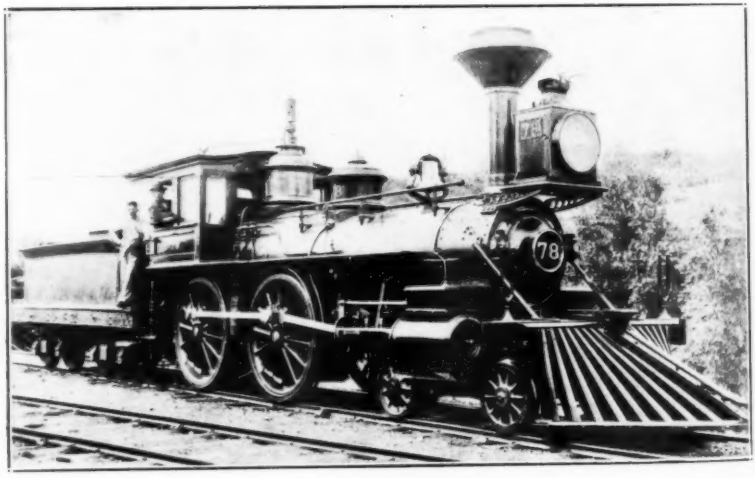
18	Pioneer	McKay & Aldus	——	1866	4-4-0	16x24"	60"	BH&E #18
18		N. Y. & N. E.		1888	4-4-0	16x24"	63"	
		Norwich & Worcester #18						
918		Re 2038—Sc 9-29-19.						
19	Pilgrim	McKay & Aldus	——	1866	4-4-0	16x24"	60"	
	Rebuilt	N. Y. & N. E.		1889	4-4-0			BH&E #19
919		Re 1864—Sc 2-1917.						
20	Advance	McKay & Aldus	——	1867	4-4-0	16x24"	60"	BH&E #20
20		Grant	——	1884	4-4-0	18x24"	69"	
920		Re 1717—Sc 2-1917.						
21	Moose	Taunton	# 405	5-10-67	4-4-0	16x24"	60"	BH&E #21
21		Rhode Island	2408	1890	4-4-0	18x24"	63"	
921		Re 1716—Sc 8-18-19.						
22	Enterprise	Taunton	# 415	8-20-67	4-4-0	15x22"	60"	BH&E #21
22		Rhode Island	3028	1894	4-4-0	17x24"	63"	
922		Re 1856—Sc 12-31-15.						
	Deer	Hinkley	# 828	1867	4-4-0	BH&E #23—Sold		
23	Gazelle	Hinkley	1112	1872	4-4-0	15x22"	60"	BH&E #23
23		N. Y. & N. E.		1886	0-4-0	16x24"	60"	
923		Re 2822—Sc 1906.						
24	Fawn	Hinkley	# 844	1867	4-4-0	15x22"	60"	BH&E #24
24		Rhode Island	3029	1894	4-4-0	17x24"	63"	
924		Re 1855—Sc 12-31-15.						
25	Costello	Hinkley	1007	1871	4-4-0	15x22"	60"	BH&E #25
25		N. Y. & N. E.		1891	4-4-0	17x24"	63"	
925		Re 1858—Sc 11-30-19.						
26	Peter Cooper	Schenectady	# 998	1876	4-4-0	17x24"	60"	
	Rebuilt	N. Y. & N. E.		1889	4-4-0			
926		Re 1865—Sc 5-18-17.						
27	Geo. Stephenson	Schenectady	1001	1876	4-4-0	17x24"	60"	
927		Re 1938—Sc 1905.						
28	Kimball	Hinkley	——	1873	4-4-0	17x24"	63"	BH&E #28
928		Scrap—1903.						
928		Baldwin	——	1904	4-4-0	18x26"	69"	
		Re 1501—Sc 12-1935.						
29	Plummer	Hinkley	1133	1873	4-4-0	17x24"	63"	BH&E #29
929		Re 1946—Sc 4-10-08.						
30	Hudson	Hinkley	1070	1872	0-4-0	14x22"	48"	BH&E #30
30		Baldwin	4378	1878	4-4-0	17x24"	57"	
		Norwich & Worcester #9.						
930		Re 1944—Sc 1907.						
31	Trustee	Hinkley	1066	1872	4-4-0	17x24"	54"	BH&E #31
31		N. Y. & N. E.		1894	4-4-0	17x24"	63"	
931		Re 1857—Sc 5-8-17.						
32	Pascoag	Schenectady	# 759	1872	4-4-0	15x24"	60"	BH&E #32
32		N. & W.		1877	4-4-0	16x24"	57"	
932		Norwich & Worcester #5—Scrap—1903.						
932		Baldwin	——	1904	4-4-0	18x26"	69"	
		Re 1502—Sc 2-29-28.						
33	Tarquin	Hinkley	1079	1872	4-4-0	16x24"	60"	BH&E #33
	Rebuilt	N. Y. & N. E.		1888	4-4-0	17x24"	63"	
933		Re 1866—Sc 2-1917.						
34	Centennial	Hinkley	——	1875	4-4-0	17x24"	60"	
934		Re 1940—Sc 1-1905.						
35		Hinkley	——	1877	4-4-0	15x24"	60"	
35		N. & W.		1889	0-4-0	16x24"	44"	
		Norwich & Worcester #11						
935		Re 2809—Sc 1905.						
36		Hinkley	——	1877	4-4-0	17x24"	60"	
936		Scrap—1899.						
936		Norwood Shops		1900	4-4-0	18x26"	69"	
		Re 1512—Sc 1-31-35.						

37		Baldwin	4377	1878	4-4-0	17x24"	60"		
937		Re 1887—Sc 1905.							
38		Baldwin	4378	1878	4-4-0	17x24"	60"		
		Sold—Norwich & Worcester R. R. #9.							
38		Rhode Island	3076	1895	2-6-0	20x26"	63"		
938		Re 500—Sc 8-31-27.							
39		Rhode Island	# 763	1879	2-6-0	18x24"	57"		
939		Re 730—Sc 1-31-22.							
40		Rhode Island	# 764	1879	2-6-0	18x24"	57"		
940		Re 731—Sc 1-1925.							
41	Gov. Trumbull	Rogers K. & G	# 192	10-30-49	4-4-0	15x20"	60"		
		H. P. & F. #1—Renamed "Beetle".							
41		Rhode Island	# 765	1879	2-6-0	18x24"	57"		
41		Rhode Island	# 961	1881	2-6-0	18x24"	57"		
941		Re 715—Sc 1-20-19.							
42	Vernon	Taunton	# 40	10-29-49	4-4-0	15x20"	60"		
		H. P. & F. #2—Renamed "Shenipsit."							
42		Rhode Island	# 766	1879	2-6-0	18x24"	57"		
942		Re 711—Sc 6-28-20.							
43	Bristol	Taunton	# 44	12-13-49	4-4-0	15x20"	60"		
	Rebuilt	H. P. & F.		1867				HP&F	# 3
43		Rhode Island	3077	1895	2-6-0	20x26"	63"		
943		Re 501—Sc 9-30-27.							
	New Britain	Rogers K & G	# 195	10-26-49	4-4-0	15x20"	60"	HP&F	# 4
44	Ajax	Chubbuck		1865	Dummy	11x15"	42"		
		H. P. & F. 23, renumbered 4.							
944		Scrap—1904.							
	Iron Horse	Norris	——	1851	4-4-0	13x26"	60"		
		H. P. & F. #5—Renamed "Rhode Island" in 1855.							
45	Rockville	Mason	# 121	11-24-62	4-2-0	9x20"	54"		
		From Rockville Br. R. R.							
45		Hinkley	——	1881	4-4-0	18x24"	69"		
945		Re 1925—Sc 10-22-18.							
46	Gov. Sprague	Taunton	# 108	7-12-52	4-4-0	15x20"	60"		
	Rebuilt	H. P. & F.		1870				HP&F	# 6
946		Hinkley	——	1881	2-8-0	22x22"	50"		
		Re 254—Sc 7-31-07.							
47	Providence	Mason	# 7	8-22-54	4-4-0	15x20"	66"		
	Rebuilt	H. P. & F.		1875				HP&F	# 7
47		N. Y. & N. E.		1887	0-4-0	16x24"	50"		
947		Re 2816—Sold—Union Freight R. R.							
48	Hartford	Mason	# 8	9-15-54	4-4-0	15x20"	66"		
		H. P. & F. #8							
48		N. Y. & N. E.		1887	0-4-0	16x24"	50"		
948		Re 2817—Sc 4-30-15.							
49	Gov. Hoppin	Mason	# 9	9-15-54	4-4-0	15x20"	66"		
	Rebuilt	H. P. & F.		1873				HP&F	# 9
49		N. Y. & N. E.		1886	0-4-0	16x24"	50"		
949		Re 2818—Sc 3-20-24.							
50	Waterbury	Mason	# 10	9-20-54	4-4-0	15x20"	60"		
	Rebuilt	H. P. & F.		1873				HP&F	#10
50		Grant	——	1884	4-4-0	18x24"	69"		
950		Re 1718—Sc 1-20-19.							
51	Wauregan	Breese & Kneeland		1854	4-4-0	14x22"	60"		
		Rebuilt & Renamed						HP&F	#11
	What Cheer	H. P. & F.		1869	4-4-0	14x22"	60"		
51		Hinkley	——	1880	4-4-0	17x24"	63"		
951		Re 1942—Sc 10-18-07.							
	Canonchet	Breese & Kneeland		1854	4-4-0	14x22"	60"		
	Sold—South Manchester R. R., renamed "Pioneer,"							HP&F	#12
52	Shenipsit	Schenectady	# 373	1864	4-4-0	11x20"	60"		
		From Rockville Branch R. R.						HP&F	#12

52		Hinkley	——	1881	4-4-0	18x22"	69"
952		Re 1926—Sc 1906.					
53	Miantonomo	Mason	# 11	11- 8-54	4-4-0	14x22"	72"
	Rebuilt	H. P. & F.—HP&F #13			4-4-0	14½x22"	60"
53		Rhode Island	3078	1895	2-6-0	20x26"	63"
953		Re 502—Sc 12-31-35.					
54	Sequasson	Mason	# 12	11-21-54	4-4-0	14½x22"	72"
		Exploded, rebuilt and renamed					
	Baltic	Mason	# 94	3-19-60	4-4-0	14½x22"	60"
	Exploded, rebuilt	H. P. & F.		1872			HP&F #14
54		Rhode Island	1079	1895	2-6-0	20x26"	63"
954		Re 503—Sc 12-29-26.					
55	Red Jacket	Mason	# 22	6-11-55	4-4-0	14½x22"	60"
	Exploded, rebuilt	H. P. & F.		1874	4-4-0		HP&F #15
55		Hinkley	# 776	1866	4-4-0	15x24"	63"
955		Formerly Norwich & Worcester #14.					
955		Norwood Shops		1900	4-4-0	18x26"	69"
		Re 1513—Sc 1-31-35.					
56	Black Hawk	Mason	# 21	5-29-55	4-4-0	14½x22"	60"
		H. P. & F. #16					
56		N. Y. & N. E.		1888	4-4-0	16x24"	63"
		Sold—Norwich & Worcester #18					
56		Rhode Island	3080	1895	2-6-0	20x26"	63"
956		Re 504—Sc 12-31-35.					
57	Connecticut	Taunton	# 364	1865	4-4-0	16x24"	60"
	Rebuilt	N. Y. & N. E.		1888	4-4-0		HP&F #17
957		Re 1867—Sc 2-19-17.					
58	R. Trevithick	Taunton	# 375	1866	4-4-0	16x24"	60"
		H. P. & F. #18.					
58		N. Y. & N. E.		1888	0-4-0	16x24"	50"
		Norwich & Worcester #1.					
958		Re 2811—Sc 6-1923.					
59	Samuel Nott	Taunton	# 400	3- 4-67	4-4-0	16x24"	60"
		H. P. & F. #19.					
59		Rhode Island	3081	1895	2-6-0	20x26"	63"
959		Re 505—Sc 8-31-27.					
60	J. T. McManus	Taunton	# 438	8-19-68	4-4-0	15x22"	66"
		H. P. & F. #20.					
60		Norwich Shops		1890	4-4-0	16x24"	63"
960		Re 2023—Sc 10-24-13.					
61	E. Garfield	H. P. & F.		1868	4-4-0	17x24"	60"
		H. P. & F. #21.					
61		Hinkley	# 810	1867	4-4-0	15x24"	63"
961		Norwich & Worcester #15 Sc 1902					
961		Norwood Shops		1903	4-4-0	18x26"	69"
		Re 1504—Sc 9-30-27.					
62	Calvin Day	Rhode Island	# 116	1869	4-4-0	17x24"	60"
		H. P. & F. #22.					
62		N. Y. & N. E.		1897	4-4-0	17x24"	63"
962		Re 1801—Sc 7-12-23.					
	Ajax	Chubbuck		1865	Dummy	11x15"	44"
		H. P. & F. #23—Re 4.					
63	Gov. Jewell	H. P. & F.		1869	4-4-0	16x22"	60"
		H. P. & F. #23.					
63		N. Y. & N. E.		1889	4-4-0	18x24"	63"
963		Re 1753—Sc 6-15-17.					
64	Stephenson	H. P. & F.		1870	4-4-0	16x22"	60"
		H. P. & F. #24.					
64		Norwich & Worcester		1869	4-4-0	16x22"	63"
964		Norwich & Worcester #17 Sc—1899					
964		Norwood Shops		1900	4-4-0	18x26"	69"
		Re 1514—Sc 2-1-30.					



N. Y. & N. E. #40. Rhode Island, 1879.



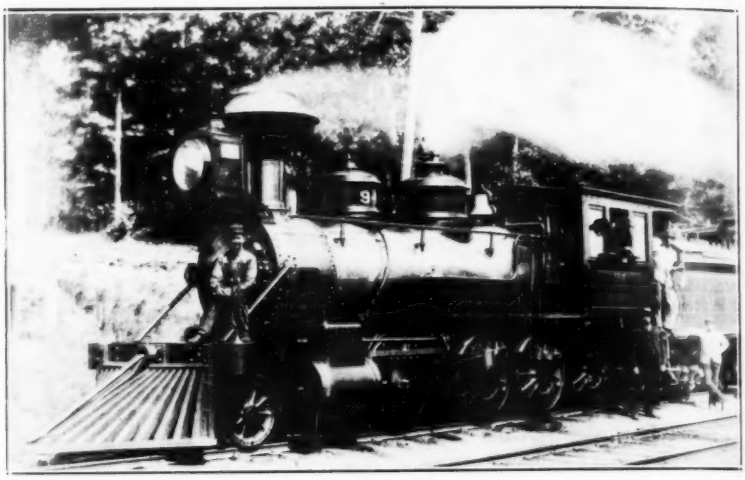
N. Y. & N. E. #78. Hinkley, 1876.

65 Gov. Dyer — H. P. & F. — 1871 4-4-0 16x22" 60"
H. P. & F. #25
965 — Vacant
66 Vernon — H. P. & F. — 1871 4-4-0 16x22" 60"
H. P. & F. #26
66 — N. Y. & N. E. — 1890 4-4-0 17x24" 63"
966 — Re 1859—Sc 2-1917.
67 Milo — Taunton — #559 — 3-30-72 — 0-4-0 — 12x24" — 42"
967 — H. P. & F. #27—Re 2914—Sc 10-24-13.
68 Rhode Island — Taunton — #569 — 6-8-72 — 4-4-0 — 16x22" — 60"
H. P. & F. #28
68 — Norwich & Worcester — 1888 — 0-4-0 — 16x24" — 50"
968 — N. & W. #8—Re 2810—Sc 10-24-13.
69 New Britain — Taunton — # 591 — 12-11-72 — 4-4-0 — 17x24" — 60"
Rebuilt — N. Y. & N. E. — 1890 — 4-4-0 — HP&F #29
969 — Re 1860—Sc 11-8-18.
70 Canonchet — H. P. & F. — 1873 — 4-4-0 — 16x22" — 60"
970 — H. P. & F. #30—Sc 1902.
970 — Norwood Shops — 1903 — 4-4-0 — 18x26" — 69"
Re 1505—Sc 11-30-27.
71 Gov. Trumbull — Taunton — # 617 — 6-23-73 — 4-4-0 — 16x22" — 60"
971 — H. P. & F. #31—Sc 1898.
72 Bee — Taunton — # 627 — 9- 5-73 — 0-4-0 — 12x24" — 42"
972 — H. P. & F. #32—Sc 1898.
73 Gov. Hawley — Taunton — # 638 — 4- 1874 — 4-4-0 — 16x24" — 60"
973 — H. P. & F. #33—Sc 1898.
74 Engineer — H. P. & F. — 1874 — 4-4-0 — 16x22" — 60"
974 — H. P. & F. #34—Re 2017—Sc 12-31-15.
75 Fly — Taunton — # 670 — 3-15-76 — 0-4-0 — 12x22" — 42"
975 — H. P. & F. #35—Sc 1903.
975 — Norwood Shops — 1904 — 2-6-0 — 18x24" — 57"
Re 712—Sc 5-28-20.
76 Gov. Lippitt — Taunton — # 672 — 4-29-76 — 4-4-0 — 18x24" — 60"
976 — H. P. & F. #36—Re 1929—Sc 1905.
77 Centennial — H. P. & F. — 1876 — 4-4-0 — 17x22" — 60"
977 — H. P. & F. #37—Re 1939—Sc 1905.
78 — Hinkley — —— — 1876 — 4-4-0 — 15x22" — 63"
Connecticut Central #1
78 — Rhode Island — 1282 — 1882 — 2-6-0 — 18x24" — 56"
978 — N. & W. #19—Re 775—Sc 1-20-19.
79 Rhode Island — # 224 — 1876 — 4-4-0 — 14x24" — 63" — Ct. Cent. #2
79 Rhode Island — # 884 — 1880 — 2-6-0 — 18x24" — 51" — N. & W. #3
979 Re 787—Sc 10-24-13.
80 Rhode Island — —— — 1876 — 4-4-0 — 15x22" — 60" — Ct. Cent. #3
80 Hinkley — —— — 1880 — 2-6-0 — 18x24" — 51" — N. & W. #7
980 Re 785-Sc 1906.
81 Rhode Island — # 880 — 1880 — 2-6-0 — 18x24" — 57"
981 Re 716—Sc 1-24-24.
82 Rhode Island — # 881 — 1880 — 2-6-0 — 18x24" — 57"
982 Re 713—Sc 7-6-23.
83 Rhode Island — # 882 — 1880 — 2-6-0 — 18x24" — 57"
983 Re 788—Sc 6-15-17.
84 Rhode Island — # 883 — 1880 — 2-6-0 — 18x24" — 57"
984 Re 714—Sc 1-1925.
85 Rhode Island — # 884 — 1880 — 2-6-0 — 18x24" — 57"—Sold N. & W. #3
85 Rhode Island — #2135 — 1889 — 2-6-0 — 19x24" — 57"
985 Re 640—Sc 1-31-22.
86 Hinkley — —— — 1880 — 2-6-0 — 18x24" — 57"—Sold N. & W. #7
86 Rhode Island — #2136 — 1889 — 2-6-0 — 19x24" — 57"
986 Re 641—Sc 1-31-22.
87 Hinkley — —— — 1880 — 2-6-0 — 18x24" — 57"
987 Re 786—Sc 1907.

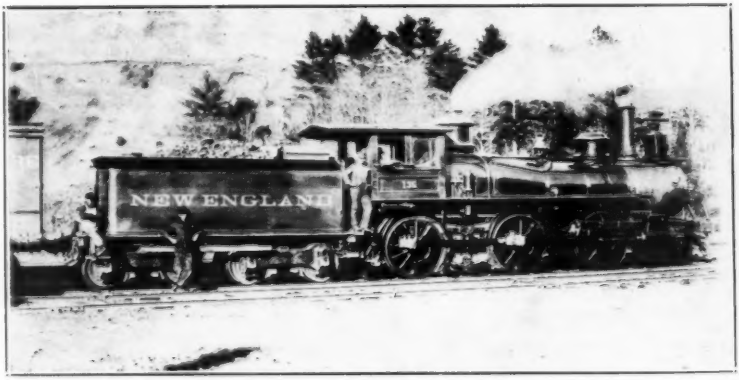
88	Rhode Island # 983	1881	2-6-0 18x24" 57"
988	Re 776—Sc 2-8-14.		
89	Rhode Island # 984	1881	2-6-0 18x24" 57"
989	Re 777—Sc 12-31-15.		
90	Rhode Island # 985	1881	2-6-0 18x24" 57"
990	Re 778—Sc 12-12-10.		
91	Rhode Island # 986	1881	2-6-0 18x24" 57"
991	Re 729—Sc 8-18-19.		
92	Rhode Island #1003	1881	2-6-0 18x24" 57"
992	Re 779—Sc 1-24-10.		
93	Rhode Island #1004	1881	2-6-0 18x24" 57"
993	Re 780—Sc 4-30-15.		
94	Hinkley ——	1881	2-8-0 22x22" 50"
994	Sc 1899.		
95	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 20x24"
995	Re 256—Sc 1907.		
96	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 19x22"
996	Re 261-246—Sc 1913.		
97	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 19x22"
997	Re 262-247—Sc 1913.		
98	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 19x22"
998	Re 255—Sc 1906.		
99	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 19x22"
999	Re 263—Sc 1905.		
100	Hinkley ——	1881	2-8-0 22x22" 50"—Reb 19x22"
1000	Re 264-248—Sc 1908.		
101	Rhode Island #1110	1883	2-6-0 19x24" 57"
1001	Re 718—Sc 5-28-20.		
102	Norwich Shops	1882	0-6-0 16x22" 45"
1002	Re 2713—Sc 1905.		
103	Norwich Shops	1882	0-6-0 16x22" 45"
1003	Re 2714—Sc 1905.		
104	Rhode Island #1242	1882	4-4-0 18x24" 63"
1004	Re 1756—Sc 2-1917.		
105	Rhode Island #1243	1882	4-4-0 18x24" 63"
1005	Re 1757—Sc 10-1913.		
106	Hinkley ——	1882	2-8-0 22x22" 50"—Reb 19x22"
1006	Re 265-249—Sc 1907.		
107	Hinkley ——	1882	2-8-0 22x22" 50"—Reb 19x22"
1007	Re 258—Sc 1905.		
108	Hinkley ——	1882	2-8-0 22x22" 50"
1008	Re 250—Sc 1905.		
109	Hinkley ——	1882	2-8-0 22x22" 50"
1009	Re 251—Sc 2-1914.		
110	Hinkley ——	1882	2-8-0 22x22" 50"—Reb. 19x22"
1010	Re 259-245—Sc 1907.		
111	Hinkley ——	1882	2-8-0 22x22" 50"
1011	Re 252—Sc 1-18-06		
112	Hinkley ——	1882	2-8-0 22x22" 50"
1012	Re 260—Sc 1906.		
113	Hinkley ——	1882	2-8-0 22x22" 50"
1013	Re 253—Sc 10-1913.		
114	Grant ——	1882	2-6-0 18x24" 57"
1014	Re 717—Sc 6-30-26.		
115	Grant ——	1882	2-6-0 18x24" 57"
1015	Re 770—Sc 4-30-15.		
116	Grant ——	1882	2-6-0 18x24" 57"
1016	Re 771—Sc 12-31-15.		
117	Grant ——	1882	2-6-0 18x24" 57"
1017	Re 772—Sc 12-18-12.		
118	Rhode Island #1244	1882	2-6-0 18x24" 50"
1018	Re 2521—Sc 4-30-15.		

119	Rhode Island	#1245	1882	0-6-0	18x24"	50"
1019	Re 2522—Sc 10-24-13.					
120	Rhode Island	#1282	1882	2-6-0	18x24"	56"—Sold N. & W. #19.
120	Rhode Island	#2137	1889	2-6-0	19x24"	57"
1020	Re 642—Sc 1-29-17.					
121	Rhode Island	#1283	1882	2-6-0	18x24"	50"
1021	Re 773—Sc 12-31-15.					
122	Mason	# 693	11-18-82	4-4-0	17x24"	62"
1022	Re 1921—Sc 2-11-11.					
123	Mason	# 694	11-21-82	4-4-0	17x24"	62"
1023	Re 1922—Sc 5-8-17.					
124	Taunton	# 860	7-23-82	4-4-0	17x24"	60"
1024	Re 1923—Sc 1906.					
125	Taunton	# 872	11-25-82	4-4-0	17x24"	60"
1025	Re 1924—Sc 1905.					
126	Rhode Island	#1309	1882	2-6-0	18x24"	50"
1026	Re 774—Sc 10-24-13.					
127	Rhode Island	#1310	1882	2-6-0	18x24"	50"
1027	Re 728—Sc 7-6-23.					
128	Rhode Island	#1318	1882	4-4-0	18x24"	63"
1028	Re 1758—Sc 8-1913.					
129	Rhode Island	#1319	1882	4-4-0	18x24"	63"
1029	Re 1759—Sc 2-1917.					
130	Grant	——	1883	2-6-0	18x24"	57"
1030	Re 760—Sc 4-30-15.					
131	Grant	——	1883	2-6-0	18x24"	57"
1031	Re 761—Sc 4-4-14.					
132	Grant	——	1883	2-6-0	18x24"	57"
1032	Re 762—Sc 12-31-15.					
133	Grant	——	1883	2-6-0	18x24"	57"
1033	Re 763—Sc 4-30-15.					
134	Grant	——	1883	2-6-0	18x24"	57"
1034	Re 764—Sc 2-1917.					
135	Grant	——	1883	2-6-0	18x24"	57"
1035	Re 765—Sc 2-1917.					
136	Grant	——	1883	2-6-0	18x24"	57"
1036	Re 766—Sc 10-17-05.					
137	Grant	——	1883	2-6-0	18x24"	57"
1037	Re 767—Sc 9-29-19.					
138	Grant	——	1883	2-6-0	18x24"	57"
1038	Re 768—Sc 11-20-19.					
139	Grant	——	1883	2-6-0	18x24"	57"
1039	Re 769—Sc 11-24-13.					
140	Rhode Island	#1336	1883	4-4-0	18x24"	69"
1040	Re 1751—Sc 10-18-07.					
141	Rhode Island	#1337	1883	4-4-0	18x24"	69"
1041	Re 1752—Sc 2-1917.					
142	Rhode Island	#1360	1883	2-6-0	18x24"	57"
1042	Re 719—Sc 5-28-20.					
143	Rhode Island	#1361	1883	2-6-0	18x24"	57"
1043	Re 720—Sc 2-1917.					
144	Rhode Island	#1362	1883	2-6-0	18x24"	57"
1044	Re 721—Sc 8-8-19.					
145	Rhode Island	#1363	1883	2-6-0	18x24"	57"
1045	Re 722—Sc 8-21-20.					
146	Rhode Island	#1364	1883	2-6-0	18x24"	57"
1046	Re 723—Sc 8-14-23.					
147	Rhode Island	#1365	1883	2-6-0	18x24"	57"
1047	Re 724—Sc 1-31-22.					
148	Rhode Island	#1366	1883	2-6-0	18x24"	57"
1048	Re 725—Sc 7-6-23.					

149 Rhode Island #1367 1883 2-6-0 18x24" 57"
1049 Re 726—Sc 5-21-20.
150 Rhode Island #1368 1883 2-6-0 18x24" 57"
1050 Re 727—Sc 2-1925.
151 Rome —— 1889 2-6-0 20x26" 57"
1051 Re 510—Sc 6-1-23.
152 Rome —— 1889 2-6-0 20x26" 57"
1052 Re 511—Sc 6-1-23.
153 Rome 1889 2-6-0 20x26" 57"
1053 Re 512—Sc 12-31-15.
154 Rome —— 1889 2-6-0 20x26" 57"
1054 Re 513—Sc 6-1-23.
155 Rome —— 1889 2-6-0 20x26" 57"
1055 Re 514—Sc 6-1-23.
156 Rome —— 1889 2-6-0 20x26" 57"
1056 Re 515—Sc 6-1-23.
157 Rome —— 1889 2-6-0 20x26" 57"
1057 Re 516—Sc 9-1-23.
158 Rhode Island #2221 1889 2-6-0 20x26" 57"
1058 Re 517—Sc 12-31-15.
159 Rhode Island #2222 1889 2-6-0 20x26" 57"
1059 Re 518—Sc 12-31-15.
160 Rhode Island #2223 1889 2-6-0 20x24" 69"
Sold—Housatonic R. R. #53. Re New Haven 503-525.
160 Cooke #2036 1890 2-6-0 19x24" 57"
1060 Re 620—Sc 7-31-25.
161 Cooke #2037 1890 2-6-0 19x24" 57"
1061 Re 621—Sc 8-31-25.
162 Cooke #2038 1890 2-6-0 19x24" 57"
1062 Re 622—Sc 12-31-15.
163 Cooke #2039 1890 2-6-0 19x24" 57"
1063 Re 623—Sc 5-23-24.
164 Cooke #2040 1890 2-6-0 19x24" 57"
1064 Re 624—Sc 1-31-22.
165 Cooke #2041 1890 2-6-0 19x24" 57"
1065 Re 625—Sc 5-23-24.
166 Cooke #2032 1890 4-4-0 18x24" 63"
1066 Re 1633—Sc 6-1-24.
167 Cooke #2033 1890 4-4-0 18x24" 63"
1067 Re 1634—Sc 6-1-23.
168 Cooke #2034 1890 4-4-0 18x24" 63"
1068 Re 1635—Sc 1-6-21.
169 Cooke #2035 1890 4-4-0 18x24" 63"
1069 Re 1636—Sc 6-1-23.
170 Rhode Island #2414 1890 0-6-0 18x24" 50"
1070 Re 2513—Sc 6-1923.
171 Rhode Island #2525 1890 0-6-0 18x24" 50"
1071 Re 2514—Sc 6-1923.
172 Rhode Island #2407 1891 4-6-0 18x24" 54"
1072 Re 910—Sc 11-20-19.
173 Rhode Island #2544 1891 4-6-0 18x24" 54"
1073 Re 911—Sc 11-20-19.
174 Rhode Island #2545 1891 4-6-0 18x24" 54"
1074 Re 912—Sc 11-20-19.
175 Rhode Island #2546 1891 4-6-0 18x24" 54"
1075 Re 913—Sc 11-20-19.
176 Rhode Island # 522 1873 4-4-0 16x24" 63"
Providence & Springfield "Hercules" #1.
176 Norwich Shops 1881 0-6-0 16x24" 44" N. & W. #4
1076 Re 2715—Sc 1906.
177 Rhode Island # 574 1873 4-4-0 16x24" 63"
1077 Providence & Springfield "Stentor"—"Wm. Tinkham" #2—Sc 1900.



N. Y. & N. E. #94. Hinkley, 1881.



N. Y. & N. E. #135. Grant, 1883.

178 Rhode Island # 638 1874 4-4-0 16x24" 63"
Providence & Springfield "Achilles" #3.
178 Norwich Shops 1888 0-4-0 16x24" 50" N. & W. #6
1078 Re 2812—Sc 4-30-15.
179 Rhode Island #1286 1882 4-4-0 16x24" 63"
1079 Re 2034—Sc 1906. Prov. & Springfield "Mars" #4.
180 Rhode Island #2193 1889 4-4-0 16x24" 63"
1080 Re 2033—Sc 12-31-15. Prov. & Springfield #5.
181 Rogers #4641 1892 4-4-0 18x24" 63"
1081 Re 1653—Sc 6-1-23.
182 Rogers #4642 1892 4-4-0 18x24" 63"
1082 Re 1654—Sc 6-1-23.
183 Rogers #4643 1892 4-4-0 18x24" 69"
1083 Re 1655—Sc 11-21-23.
184 Rogers #4644 1892 2-6-0 19x24" 57"
1084 Re 605—Sc 5-23-24.
185 Rogers #4645 1892 2-6-0 19x24" 57"
1085 Re 606—Sc 6-30-25.
186 Baldwin #12380 1891 4-6-0 13½&23x24" 68"
1086 Re 870-970—Sc 12-31-25. Reb 19x26"
187 Baldwin #12381 1891 4-6-0 13½&23x24" 68"
1087 Re 871-971—Sc 10-16-26. Reb 19x26"
188 Baldwin #13764 1893 2-8-0 15&25x26" 57"
1088 Re 235—Sc 12-31-25. Reb 20x26"
189 Baldwin #13761 1893 2-8-0 15&25x26" 57"
1089 Re 236—Sc 12-31-25. Reb 20x26"
190 Baldwin #13762 1893 2-8-0 15&25x26" 57"
1090 Re 237—Sc 9-1924. Reb 20x26"
191 Baldwin #13765 1893 2-8-0 15&25x26" 57"
1091 Re 238—Sc 6-30-25 Reb 20x26"
192 Baldwin #13778 1893 2-8-0 15&25x26" 57"
1092 Re 239—Sc 6-30-25. Reb 20x26"
193 Baldwin #13772 1893 2-8-0 15&25x26" 57"
1093 Re 240—Sc 8-31-25 Reb 20x26"
194 Baldwin #13769 1893 2-8-0 15&25x26" 57"
1094 Re 241—Sc 5-31-25 Reb 20x26"
195 Baldwin #13773 1893 2-8-0 15&25x26" 57"
1095 Re 242—Sc 5-31-25 Reb 20x26"
196 Baldwin #13775 1893 2-8-0 15&25x26" 57"
1096 Re 243—Sc 5-31-25 Reb 20x26"
197 Baldwin #13790 1894 2-8-0 15&25x26" 57"
1097 Re 244—Sc 5-31-25 Reb 20x26"
198 Rhode Island #1372 1884 4-4-0 17x24" 60"
M. W. & C. #1; N. H. Nos. 2-1898—Sc 1915.
198 Schenectady #4611 1897 Steam coach 12x16" 42"
Steam engine & boiler removed, rebuilt to N. H. Coach #1098.
199 Baldwin #1761 1868 2-4-0 14x22" 50" Reb.
Rhode Island 1885 0-4-0 M.W.&C. #2 N. H. Nos. 14-2826
200 No Data—M.W.&C. #3.
201 Schenectady #2695 1888 4-4-0 17x24" 60"
M. W. & C. #4; N. H. Nos. 151-1849—Sc 1917.
202 Schenectady #1741 1888 4-6-0 18x24" 56"
M. W. & C. #5—Sold to Shepaug R. R.
N. H. Nos. 552-452-929—Sc 1922.

NORWICH & WORCESTER R. R.

The Norwich & Worcester R. R. was formed in 1836 of a consolidation of the Worcester & Norwich R. R. Co. (of Mass.) and the Boston, Norwich & New London R. R. Co. (of Connecticut), to build a road from

Worcester, Mass., to Norwich, Ct., a distance of 58.9 miles. The road was opened for traffic on March 9, 1840.

In connection with the Boston & Worcester R. R. it became a link in the service between Boston and New York for many years. In the early days, passengers took the steamboat three days a week from Norwich to New York but on the alternate days they were ferried across Long Island Sound to the Long Island R. R. and over that railroad proceeded to Brooklyn and to New York.

Almost from the beginning the two roads operated a through train between Boston and Norwich and the line, until recently suspended was known as the Norwich Line, equally as famous as the Fall River, Providence or Stonington line of boats.

On Feb. 9, 1869 the Norwich & Worcester was leased to the Boston, Hartford & Erie and came into the New Haven system through the lease of the New England R. R. in 1898. The new owners diverted the Norwich Line steamboat train to their own rails and proceeded to run it in competition with the other rail and sound lines. In 1899, the New Haven built the six mile extension from Allyn's Point to Groton, Ct. The old Norwich & Worcester R. R. forms a link in the through traffic from New York to down east points and such trains as the "Bar Harbor Express" "State of Maine Express" and the "Maine Bullet" use this route.

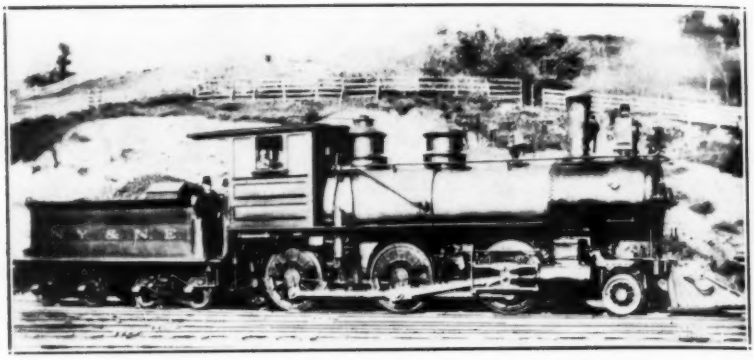
Turning to the locomotives, they were never included with those of the B. H. & E. but were kept in their own numerical assignment and were lettered "N. & W." This continued through N. Y. & N. E. control though some of the N. Y. & N. E. locomotives were renumbered and assigned to the N. & W. It was not until 1890 that the N. & W. locomotives were included in the N. Y. & N. E. series and they were assigned vacant numbers rather than a group of numbers. In listing the N. & W. locomotives, the N. Y. & N. E. number, if any, will be indicated and this number will be found in the N. Y. & N. E. series.

Norwich	Rogers K & G	#13	6- 3-39	4-2-0
Worcester	Rogers K & G	#16	10-30-39	4-2-0
Concord	Rogers K & G	#17	12-16-39	4-2-0
Nashua	Rogers K & G	#19	12-19-39	4-2-0

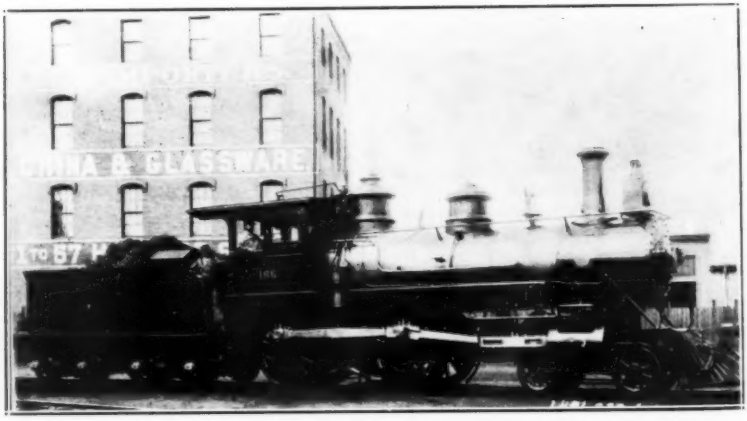
The Rogers Order Book states—"One round top locomotive with tender, bell, steam whistle, complete, to be delivered May 15th, price $7000.00 to be paid in cash or satisfactory paper at four and six months. Width of track 4 ft. 8½ inches, between the rails. Name: 'Norwich.'

"One square top locomotive engine with the driving wheels forward the furnace with a tender that will hold about 900 gallons of water and 3/8 of a cord of wood. The tender may be any width not exceeding 8½ feet with bell not less than 35 pounds weight and steam whistle complete to be delivered in the month of June, price $7000.00 Name: 'Worcester,' delivered Oct. 30, 1839.

"Two locomotive engines with copper heads as per proposition from New York, Nov. 9, cash $6750.00 each. Named: 'Concord' and 'Nashua.'"



N. Y. & N. E. #155. Rome, 1889.



N. Y. & N. E. #166. Cooke, 1890.

Bay State	Norris	——	1840	4-2-0	
Oliver Evans	Norris	——	1840	4-2-0	
Gen'l Lincoln	Norris	——	1840	4-2-0	
Webster	Norris	——	1840	4-2-0	
Boston	Rogers K & G	——	1841	4-2-0	

"One six wheel locomotive engine, boiler oval, 40x46" high, 139 tubes, 8' 8" long, 1⅝" dia. Both tube sheets of copper. Round furnace, copper dome, two valves, bell and whistle, also whistle on exhaust pipe over smoke arch. Four steam cocks, 12x18" cyl., steam port 10x1", exhaust port 10x1¾", steam pipe for steam chest 3½" dia. Steam pipe in boiler 5" dia. and bell mouth end. Throttle to open 15 sq. in. Driving wheels 5' 4" dia. Cast chilled truck wheels 33" dia. Throw of slide valve 3¾". Slide to lap ⅜" each end. Eccentrics, fitted so as to be adjusted at pleasure. Name: 'Boston.'"

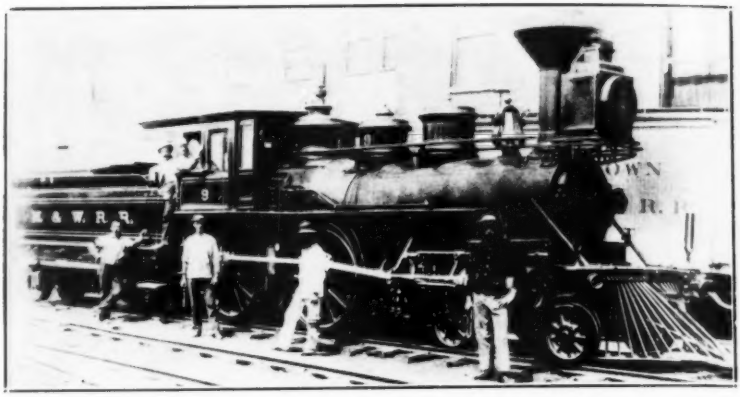
	Newton Perkins	Hinkley & Drury	#253	11-17-49	4-4-0	15x20"	54"
	Suffolk	G. S. Griggs		1846	4-4-0	14⅝x18"	60"
		Purchased from Boston & Providence R. R.					
1	Boston	Hinkley	#783	1866	0-4-0	14x22"	45"
2	Rockwell	Hinkley & Drury	# 40	4-29-45	4-4-0	13½x20"	66"
2	Bay State	Norwich Shop		1876	4-4-0	15x22"	57"
3	Wm. P. Greene	Norris Bros.	——	1845	4-4-0	14x20"	57"
3		Rhode Island	#884	1880	2-6-0	18x24"	57"
		Ex N Y & N E #85—Re N Y & N E 79.					
4	Col. DeWitt	Rogers K & G	#100	5-17-47	4-4-0	14x20"	72"
4		Norwich Shop		1881	0-6-0	16x24"	44"
		Re—N Y & N E 176.					
5	Uncas	Springfield	——	1850	4-4-0	?	?
5	Marmoset	Norwich Shop		1877	4-4-0	16x24"	57"
		Re—N. Y. & N E 32.					
6	Nathan Hale	Hinkley	#298	3-27-51	4-4-0	16x20"	54"
6		Norwich Shop		1881	0-4-0	16x24"	44"
		Re N Y & N E 178.					
7	Joel W. White	Hinkley	#557	4-20-55	4-4-0	15x24"	72"
7		Hinkley	——	1880	2-6-0	18x24"	51"
		Ex N. Y. & N E #86—Re N Y & N E 80.					
8	Owenoco	Hinkley	#665	1864	4-4-0	16x20"	51"
8		Norwich Shops		1888	0-4-0	16x24"	44"
		Re—N Y & N E #68.					
9	Mohegan	Lawrence M. S.	#107	1857	4-4-0	14x22"	57"
9		Baldwin	#4379	1878	4-4-0	17x24"	60"
		Ex N Y & N E #38—Re N Y & N E 30.					
10	Pequot	Lawrence M. S.	#108	1857	4-4-0	14x22"	57"
10		Norwich Shop		1889	0-4-0	16x24"	44"
		Re—N Y & N E 10.					
11	Sagamore	Hinkley	#683	1864	4-4-0	16x20"	51"
11		Norwich Shop		1889	0-4-0	16x24"	44"
		Re—N Y & N E 35.					
12	Sachem	Hinkley	#723	1865	4-4-0	15x22"	63"
13	Quinebaug	Hinkley	#722	1865	4-4-0	15x22"	57"
13		Mason	#697	4-27-83	4-4-0	17x24"	62"
	Originally built as Milford & Woonsocket R. R. #1 but was too heavy for the road. Diverted to the N. & W. Re N Y & N E 13.						
14	Shetucket	Hinkley	#776	1866	4-4-0	15x24"	57"
		Re—N Y & N E 55.					

15	Thames	Hinkley Re—N Y & N E 61.	#810	1867 4-4-0	15x24" 57"
16	Tiger	Hinkley	——	1867 0-4-0	15x22" 45"
17	Wauregan	Norwich Shop Re—N Y & N E 64.		1869 4-4-0	16x24" 57"
18	Attawaugan	Norwich Shop		1872 4-4-0	16x24" 57"
	Rebuilt	N. Y. & N. E. Re—N Y & N E 18.		1888 4-4-0	16x24" 63"
19	Artisan	Norwich Shop		1873 4-4-0	16x24" 57"
19		Rhode Island Ex—N Y & N E #120—Re N Y & N E 78.	#1282	1882 2-6-0	18x24" 56"
20	Yantic	Norwich Shop		1875 4-4-0	16x24" 57"
21		Norwich Shop		1890 4-4-0	16x24" 57"

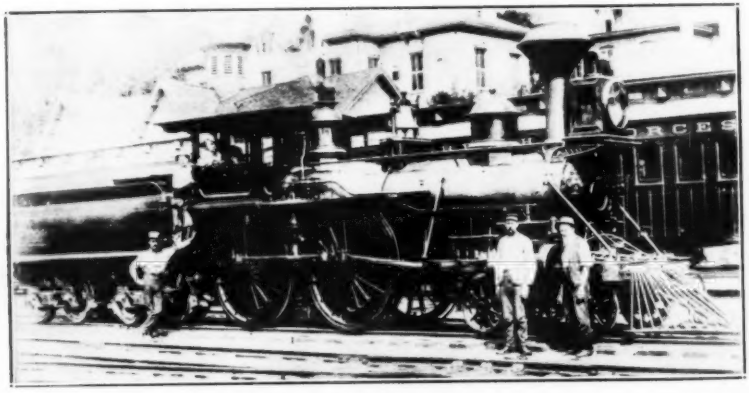
The #21 was the last engine built at the Norwich Shops. It was lettered and numbered Norwich & Worcester when word came to letter all equipment N. Y. & N. E. and this engine was numbered N. Y. & N. E. 60.

The following engines replaced the N. Y. & N. E. locomotives in the present series of numbering of the New Haven locomotives:

900- 903	H-1	Rhode Island	1893	18x24"	57"	112000	Ex 301-304.
904- 909	H-1	Rhode Island	1891	18x24"	57"	110000	Ex 13, 20, 30, 53, 55, 57.
910- 913	H-1	Rhode Island	1891	18x24"	57"	110000	Ex 1072-1075.
914- 920		Vacant					
921	H-2	Rogers	1891	18x24"	57"	106000	Ex 507.
922- 923	H-2	Rogers	1890	18x24"	57"	106000	Ex 487-488.
924- 926	H-2	Rogers	1889	18x24"	57"	106000	Ex 463, 482, 484.
927- 928	H-2	Rogers	1888	18x24"	57"	106000	Ex 479, 481.
929	H-2	Schenectady	1888	18x24"	57"	106000	Ex 482.
930	H-3	Baldwin	1888	18x24"	56"	90000	Ex 86.
931	H-4	Baldwin	1871	17x24"	57"	89000	Ex 83.
932- 949		Vacant					
950- 954	G-3	Rhode Island	1904	19x26"	57"	125000	Ex 41, 47, 51, 60, 64.
955- 969	G-3	Rhode Island	1904	19x26"	57"	125000	Ex 125, 141, 154-155, 157-160, 162-163, 182, 185, 190, 192, 194.
970- 971	G-1	Baldwin	1892	19x26"	63"	136000	Ex 1086-1087.
972	G-2c	Manchester	1890	19x26"	63"	121000	Ex 349.
973	G-2b	Rhode Island	1889	19x26"	63"	122000	Ex 344.
974- 978	G-2a	Rhode Island	1882	19x26"	61"	117000	Ex 108-112.
979- 999		Vacant					
1000-1008	I-1	Schenectady	41705-713	1907	22x28"	73"	229500
1009-1010	I-1	Baldwin	31681-682	1907			
1011	I-1	Baldwin	31701	1907			
1012-1016	I-1	Baldwin	31766-770	1907			
1017-1018	I-1	Baldwin	31813-814	1907			
1019	I-1	Baldwin	31874	1907			
1020	I-1	Baldwin	31839	1907			
1021-1022	I-1	Baldwin	31857-858	1907			
1023-1024	I-1	Baldwin	31875-876	1907			
1025	I-1	Baldwin	31903	1907			
1026-1027	I-1	Baldwin	31943-944	1907			
1028	I-1	Baldwin	32008	1907			
1029	I-1	Baldwin	32058	1907			
1030-1031	I-1	Schenectady	49094-095	1910			
1032-1089		Vacant					
1090-1095	I-3	Baldwin	39173-178	1913	24x28"	79"	246000
1096-1099		Vacant					
1100-1111	F-1	Schenectady	41714-725	1907	21x26"	79"	200000



N. & W. #9. Baldwin, 1878.



N. & W. #11. Hinkley, 1864.

The continued growth in the weight and length of passenger trains on the Shore Line caused the New Haven to purchase the 30 Pacific type engines in 1907 and the 12 Atlantic types were assigned the five hour trains—the "Bay State Limited," "Knickerbocker Limited" and "Merchants Limited." Increase in the length and weight of the later caused the road to purchase six more Pacific type engines in 1913 for this service. In later years they have been superheated and many have had new frames, thus increasing the total weight of engine. The Atlantics have long since been relegated to local service but when the "Comet" between Boston and Providence is ailing these Atlantics will easily carry the two de luxe coaches on the same schedule of the "Comet." In recent years they have been reclassified as H-1.

Photographs of B. H. & E. No. 18; N. & W. Nos. 9 and 11; N. Y. & N. E. Nos. 78 and 135 were furnished by Mr. J. Wm. Barnes and the "Waterbury" from Mr. Inglis Stuart for which the author wishes to express his appreciation.

In BULLETIN #50 we will treat of the Central New England R. R. and its locomotives.

Whistler's Report on the Gauge of the Petersburg-Moscow Railroad

By Homer B. Vanderblue

George Washington Whistler was the first Civil Engineer trained in American practice to gain an international reputation. Born at Fort Wayne, Indiana, the frontier outpost which his father commanded at the turn of the century, he was graduated from West Point as an officer of artillery in 1819. A few years later he served at the Military Academy as a teacher of drawing. Work with the Corps of Topographical Engineers then followed, taking him to the head of the Great Lakes as a member of the field party engaged in fixing the international boundary between Lake Superior and the Lake of the Woods.

In 1828 came the assignment which was to turn Whistler's career into one of active railroad service: a detail to assist the organizers of the Baltimore & Ohio in meeting their engineering problems. Shortly thereafter he, together with another West Pointer, later his brother-in-law, William Gibbs McNeill, and a civilian, Jonathan Knight, was sent to England on a visit of inspection and study. Upon his return, he worked for a brief time on the B. & O., next on the location surveys of the Baltimore & Susquehanna and the Paterson & Hudson River, and then on the extension of the Boston & Providence to Stonington, thereby contributing to the building of a portion of the old route from Boston to New York: by rail to Stonington, by steamboat to Greenport on Long Island, and thence by the Long Island Railroad to Brooklyn. This continued as a through route until the gap between New Haven and Stonington was filled by the completion of the "Shore Line."

In 1833 Whistler resigned from the army and moved to Lowell, Massachusetts, where he served as Engineer in charge of the Machine Shop of the Proprietors of the Locks and Canals, which was engaged in building locomotives. The artist-son was born at Lowell in 1834 in a house still standing. In 1837 Major Whistler returned to the Providence & Stonington, and, presently, with Major McNeill, first as consulting engineer and then as Chief Engineer, moved to the Western Railroad of Massachusetts, locating and building the present line of the Boston & Albany through the Berkshires. Several of his official papers of this period are deposited in the Baker Library at Harvard.

In 1842 came a new opportunity: a Commission of Russian officials engaged in studying American railroads persuaded him to accept appointment as consulting engineer to the Russian Government, then proposing to build a railroad connecting St. Petersburg with Moscow. Construction of the line—the story is told that the Czar, seeing a map of the survey with its "serpentine" track, impatiently took a ruler and drew a straight line between the two cities—began in 1844.

It was early in the period of planning that Whistler wrote his report on the gauge of the track which is here reproduced from the original which still lies in the Russian archives, coming to me, in photostat, from Mr. Budd of the Burlington. Before the line had been completed, George

GEORGE WASHINGTON WHISTLER

distance between the bearings is assumed to be between 3 and 5 feet. and the question then is between the economy of an increased weight of iron in the rails for a long bearing, or increased number of supports for the shorter. and I have decided, as the case is similar to America, that the wooden sleepers will be cheaper than the iron ones;- and as the weight upon any one pair of wheels to guard against the rail need never exceed eight tons. I would recommend, that the weights of the rail be established at sixty pounds to the yard - to be supported at intervals of every three feet.-

Which is respectfully submitted
by Your Excellency's
most Obt. Servt.

George W. Whistler.

W. Whistler died (April 4, 1849) from a heart attack, following recovery from cholera, the body being returned for burial at Stonington, Connecticut. One son, George William Whistler later was active in Russia, as a railroad engineer; another, William Gibbs McNeill Whistler became a well-known physician in London; and a third, James Abbott McNeill Whistler, who had entered West Point in 1851 and left three years later before graduation, became the great artist. With her children all living abroad, Mrs. Whistler moved to England where she died in 1881. Meanwhile the artist-son had painted her portrait. So it is that the world in general knows of Whistler's Mother, while all too few know of the distinguished career of his engineer-father, of which the following document is important and significant evidence.

St. Petersburg, September 9th, 1842.

To His Excellency
The Count Kleinmichel
Aid de Camp General, etc. etc. etc.

As it is important that the question of width or "gauge" of track, and the form and weight of the iron rails to be used on the St. Petersburg and Moscow Railroad should be determined as soon as possible, I beg leave to submit the following remarks and recommendations.—

The "Gauge" of the track of almost all the railroads in Europe and America with some few exceptions is uniform, and 4 feet 8½ inches.—and however arbitrarily these particular dimensions may have been fixed upon originally, experience I believe has shown no sufficient cause for any material change.—having been adopted on the earliest roads in England, its *precise* dimension continued from the necessary connections in the extension of the system, and I believe the question of altering it was not made until a very material increase in width was adopted in the construction of the Great Western Railroad in that country—since when it has frequently been the subject of investigation and discussion.—All have agreed that the original gauge of 4 feet 8½ inches is narrow enough; the question has therefore been confined entirely to an increase, and the advantage to be derived from this increase is generally stated to be.—An increased speed, beyond that heretofore acquired on roads of the ordinary gauge, and this to be attained.—

1st By the mechanical advantage, or diminution of friction by increasing the diameter of the wheels, which may be done with wider gauge without raising the bodies of the carriages.—

2nd Greater stability to the carriages on the track and consequent greater steadiness of motion, and

3rd Increased facilities for the adoption of large and more powerful engines necessary for the anticipated increased speed.—

In relation to this anticipated increased speed, the experiments instituted to aid in the investigation of this question and reported upon by Mr. Nicholas Wood, an eminent English Engineer, clearly show that any such extraordinary speed is acquired only by a very great sacrifice of power, and it seems to me there can be little doubt that the rapid increase of resistance with the increase of speed must lead to the conclusion that

it is not advisable to attempt an extreme rate of speed, and in my opinion 30 to 35 miles an hour may be considered as the limit of practical speed for passenger trains, with due consideration to economy and a proper accommodation of the public.—this rate of speed is attained on roads of the ordinary gauge with the same facility as on those of wider gauge—and may be increased if thought advisable.—

In reference to the mechanical advantage to be attained by increasing the diameter of the carriage wheels.—it is true there will be a diminution of friction with the increase of the diameter of the wheels, but I have no reason to believe that raising the body of the carriage within the limits of a practical increase of the wheel would effect the result.—while on the other hand, I do not think it would be advisable to increase the wheels beyond the ordinary practice for such a purpose, since the small advantage thus to be attained in the diminution of friction would be at the expense of heavier wheels and axles for equal strength, and in my opinion increase of speed had better be acquired if necessary by an expenditure of power as a greater means of security against accident; for large wheels cannot be made so strong as small ones—

In relation to the greater stability of the carriages on the wide gauge and consequent increased steadiness of motion.—This is so dependent upon the construction of the carriages themselves, and the manner in which they may be connected together in the trains, that I cannot see what effect the gauge (within practical limits) can possibly have upon it—the experiments on this head, have not shown any advantages of the wide over the ordinary gauge.

In relation to the last mentioned advantage, viz—the facilities for adopting larger and more powerful engines—I can only say the result of my experience, and the opinion of all the builders with whom I have conversed, goes to show that an increased width of gauge is not necessary to this end—since engines may be, and have been constructed for roads of the ordinary gauge, of the maximum weight, and consequent power—due to the capacity (strength) of any rails now in use—and to increase the engine power beyond this would involve the necessity of an increase in the weight of the rail which I believe to be unnecessary in this case, as I have no doubt engines may be constructed for the ordinary gauge of sufficient power to draw the maximum practically manageable train.—

The objections to a material increase in the gauge beyond that in general use are—

1st That the necessary increased weight of the carriages consequent upon increased length of axles, which must also be increased in diameter to preserve equal strength, not only increases the cost, but the proportion of weight of cars to goods carried, which upon a road like this between St. Petersburg and Moscow intended as it is for the transportation of large quantities of goods should be avoided as much as possible.—

2nd A material increase of gauge involves an increased cost in the formation of an increased width of road bed—the precise amount of which I am not at present prepared to say—but it is evident that in a line of such extent as this [420 miles] it must be very considerable.—

These are the principal disadvantages of an increased gauge as immediately applicable to the St. Petersburg and Moscow Railroad, and I think it must be admitted that they are not met by any equivalent advantages.—I would therefore recommend—that five feet be adopted as the width or "gauge" of the track.—

I have adopted the additional 3½ inches, because it is not necessary in this case to adhere to the precise dimension of 4 feet 8½ inches for the purpose of connecting with other roads of that gauge, and because it is too small an increase to effect materially the important question of cost —and will be available for convenience in the construction of Engines.—

The form and weight of the iron rail.—

It will be unnecessary here to repeat all that has been said on the various forms and weights of rails—the question has always been one of much importance, and early became the subject of scientific investigation, from which the general form for maximum strength has been deduced and confirmed by experience being generally adopted with such modifications as the peculiar mode of fastening seemed to require;—this form for maximum strength is that given to what is usually called the T rail.—

In the arrangement of the exact form of the section of this rail, there are practical causes governing the distribution of the metal in addition to the more important one of maximum strength;—one of these is, that whatever the general form or weight of the rail, the "head" or upper bearing part should have some certain dimensions and weight with reference to the effect of the wheels moving over it aside from its duty as a part of the rail for supporting the weight;—another, is the peculiar form to be given to the bottom web with reference to its steadiness in the chair or other mode that may be adopted for its fastenings.—

In England and in Europe generally the rails are secured by means of cast iron chairs fastened to stone blocks or wooden sleepers at each bearing point, and for this purpose the bottom web is made not over 1½ to 2 inches wide and rests in the chair, secured by iron or wooden keys.—

In America generally, the rails rest immediately on the stone block or wooden sleepers without the intervention of cast iron chairs—except at the end of each rail, where, the better to secure the relative position of the ends of the two rails, they are made to rest on a cast iron plate—the whole being secured to the sleepers by iron spikes.—for this purpose the bottom web of the rail is extended in width sufficient to give a firm bearing on the sleeper without the aid of a chair, by which means the weight of the chair is applied to give strength to the rail—the result of my own experience and the opinion generally among engineers where this mode has been used has led me to the conclusion that this form of rail (called in America the H rail), and mode of fastening, gives at least equal, if not greater stability—greater simplicity, and economy than any other. I would therefore recommend that this form be adopted.—

In relation to the weight of the rail, as this is a question of strength and has been the subject of direct experiment—it is dependent (within certain practical limits) upon the length of bearing, or distance between the supports, and the weight upon any one pair of wheels to pass over it;

—the practical limit for the distance between the bearings is assumed to be between 3 and 5 feet and the question then is between the economy of an increased weight of iron in the rails for a long bearing, or increased number of supports for the shorter—and I have decided, as the case is similar to America, that the wooden sleepers will be cheaper than the iron rails;—and as the weight upon any one pair of wheels to pass over the rail need never exceed eight tons I would recommend, that the weight of the rail be established at sixty pounds to the yard—to be supported at intervals of every three feet.—

Which is respectfully submitted by your Excellency's

Most Obt. Servt.

GEORGE W. WHISTLER.

House in left foreground is Northern R. R. Station at Malone. Photo taken 1851. This house is now at 100 Park St., Malone. Park in foreground is at corner of Main and Elm Street. (Then called Weed Street).

The Horton House as it looks today.

"The Wheeler Station"

By Lawrence Doherty

Perhaps Dad, or at any rate Grandad, will remember the Hayes-Wheeler vs. Tilden-Hendricks Presidential Campaign of a few decades ago. We are not, however, interested in the political history of all this, except that the "Wheeler" was the man after whom the station was named. This station is the "William A. Wheeler Station" of the present Ogdensburgh Sub-Division of the Rutland Railroad at Malone, New York.

You may recall that in the R. & L. H. S. Bulletin #47, we gave a short history of the Northern New York Railroad, which later, of course became the Ogdensburgh & Lake Champlain and is now, a part of the Rutland. Our work in this issue begins with the original station of the Northern Railroad and our effort may well be considered a continuation of the discussion in Bulletin #47.

The date is immaterial, but sometime in the late 1700's, Mr. Miller built a house in Malone, which later became the property of Hiram Horton, who, in a deed, dated July 30th, 1849 conveyed some four and one half acres of land, an island, "Snowshoe," in the Salmon River, as well as the "properties above and below the ground" for the sum of three thousand seven hundred and fifty dollars, to the Northern Railroad Co. The "properties above the ground" were chiefly the house, shown at extreme left in Photo #1, taken in 1850. To this house came the offices of the Northern Railroad.

In 1857 at the annual meeting held in the house a new set of officers, with Hon. Wm. A. Wheeler as President, Y. S. Eldredge as Vice-president, A. C. Brown, treasurer, S. C. F. Thorndyke as cashier and Geo. V. Hoyle as superintendent were elected. Mr. Pellatier was retained as chief engineer for the company and Abraham Klohs was retained to fill the office of master mechanic in charge of the roads' main shops, located at that time in Ogdensburg, but removed in 1858 to Malone.

In 1857 the "Railroad Saloon" was added, to accommodate the "place of eating." Later, in this same addition, were the offices of the Vermont & Boston Telegraph Company, the ticket offices of the representatives of the "Rome Road," Grand Trunk, Central Vermont, Northern Navigation Company and others.

The original station agent was Marshall Conant, and his clerk, E. H. Ladd. Mr. Conant later resigned (December 27th, 1866,) to accept a position with the Minnesota Southern as chief land agent for the company, in which capacity he met with marked success. Mr. Ladd became chief clerk and general ticket agent for the company for many years.

The railroad saloon also contained the offices of Cheney, Fiske and Co., Express Agents, whose service was under the direction of the resident agent, D. N. Bryant. The company advertised 16 hour service to Boston and 17 hours to New York City.

Opinion seems to be divided about Mr. Wheeler. Some say that he planned the Wheeler Station as a tribute to his memory, while another

school of thought holds that he worked only for the best interests of Malone and the Northern. The fact is, however, that whatever the motivating factor, Mr. Wheeler, in 1854, commenced agitation for a new station, which as he wrote in a letter, would "outshine anything except the metropolitan area." To this end he and Mr. Pellatier worked long hours planning and sketching according to the whims of Mr. Wheeler. At last the plans were finished and placed before the Board of Directors for approval.

In the meantime, October 1st, 1854, the Northern had gone into receivership, and this lasted until the re-organization of August 1, 1865. Because of this, the directors refused to grant Mr. Wheeler the required money to build his station. With characteristic vigor Mr. Wheeler attacked the opposition and this issue reached some heat. However, Mr. Wheeler was successful in the end. It is not unlikely that this attack caused Mr. Wheeler to fall into disrepute with the others on the board and when the re-organization came about Mr. Wheeler ceased to be a party.

On Thursday, July 6th, 1865, the following notice appeared in the *Malone Palladium*: "THE CARS—The freight house on the West side of the river in this Village, will be used, as a Passenger Depot on and after this date, until further notice. Trains will not stop on East side of river as formerly. G. V. Hoyle, Supt."

On Thursday, July 20th, 1865, the following, under title: "A New Depot." "Preparations are being rapidly made for erection of a new depot in this village. The old 'Horton House' has been disposed of and a part of it removed with the other part to follow. The Railroad Saloon has been removed to make room for the new edifice—the work upon which —will, we are told, commence in a few days."

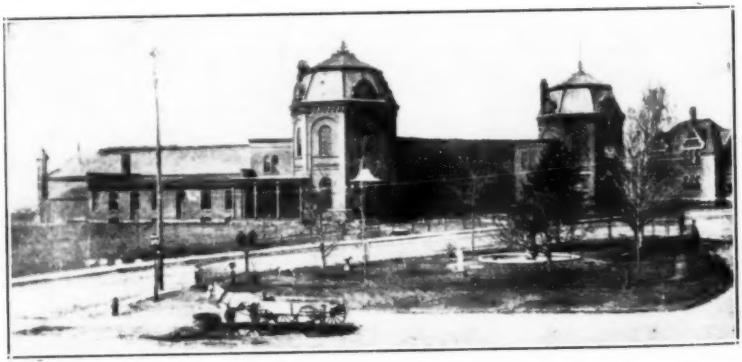
In the meantime, on July 11th 1865, there was a meeting of the bondholders of the Northern Railroad at Malone, in the station, which by the way, was in the process of being moved at the time. The bondholders elected the following, John C. Pratt, President, Jacob W. Pierce, Geo. M. Barnard, D. W. C. Brown, Thomas Upham, S. M. Felton, John S. Farlow, Albert Andrus, G. D. Farnsworth, Arthur Williams, H. Hollis Hunnawell and Calvin T. Hubbard, directors; G. V. Hoyle, Supt., Mr. Pellatier, chief engineer.

On Thursday August 10th, 1865, it was announced that "Mr. Wheeler, who has the funds in hand for the purpose, will complete the station, the foundations for which are nearly complete."

On May 21, 1866 it was announced that, "work on the Depot is progressing rapidly as possible. The towers and all the outside are nearly complete and the masons are plastering the inside of that portion required for the use of the travelling Public."

While work is in progress on the new station, let us see what happened to the old one. The railroad saloon became a barn, and, I am told, it was later destroyed by fire. The original "Horton House" was moved far enough away to be off the immediate station property and became a tavern, boarding house, store, etc., in fact for a time, it was a "place of entertainment." In after years, it was moved to what is now Park

Present Freight Station built in 1850.



Rutland R. R. Station, Malone, N. Y.—1890.

O. & L. C. Engineers at Dinner given in O. & L. C. Station Restaurant by Superintendent Brown, Malone, N. Y., April, 1867. Taken after meal.

Street, Malone, nearly one half mile from its place of origin. My wife's family owned it from 1927 until 1938, when it was sold and re-modeled as a two family apartment house. Photo #2 shows how it looks today. I have often pondered those old walls, wishing that they might speak of the scenes they witnessed, or, that thru a door might come some of the men who planned great things within its confines.

Photo #3 shows the present freight house, erected in 1850, which was used as a temporary station while the new one was being built. On its walls have been stenciled many of the eventful happenings of the country as well as the record of events on the railroad, as for instance "General Grant Died TO-Day" and the date. Those walls are a study in themselves, and if you are ever up this way, be sure and stop. It will be worth your while.

To get back to our station. Tho Mr. Wheeler resigned Friday, July 7th, 1865, he took active part in the building of the station, laying the corner stone, supervising with Mr. Pellatier the work of the carpenters under their supervisor Mr. Wentworth; attending to the mason work which was under the direction of Mr. Rounds, who, incidentally furnished the bricks from his own brickyard in Malone. An advertisement of the time says that the capacity of Mr. Rounds' mill and brickyard was "45 to 50 thousands of bricks daily."

The station was open for service Monday, August 27th 1866, tho' the new railroad saloon was not opened until October 18th, 1866. The "Eating Saloon" in the railroad saloon was under the "command" of Mrs. Gile of Brushton, New York. On Thursday, December 13th, 1866, the express and telegraph offices were opened for business "first door east of the clerk and treasurer's office." Photo #4 shows the station as it looked at the time of completion, while photo #5 shows "O&LC engineers at a dinner given in the Wheeler Station by Supt. Brown, Malone, New York, April 16th, 1867." (The man in the cap is James Callopy of Malone, the only one I can positively identify, except Supt. Brown, front row, center).

Mr. Wheeler, as we have seen, planned to build a station which would "outshine anything outside the metropolitan area." Mr. J. Huntly Sewell, a much traveled commentator of the time, has this to say about the Wheeler station in a letter dated July 7, 1869: "Dinnered to-day at the Malone Station, a very fine meal, expertly prepared and served. We were here twenty minutes, giving time for a brief look at the new station completed about a year ago. I may say that no finer edifice exists anywhere in the State, except in New York City. Talked with Mr. Wheeler, the 'author' of the building, etc."

Originally, the station was double tracked, but in 1889 the extra track was removed and wider platform put in. About this same time the porch visible in the photo was removed and the carriage drive filled in. In 1870 the general offices were removed and have never returned. They were originally in the east tower, second floor, while in the south tower were the offices of dispatcher, superintendent, etc. On the ground floor of the east tower was the "eating place", occupied as such until 1876 when it was abandoned. From 1876 to 1917 this location was the music

store of M. J. Slason and Son, from 1917 to date, it has been the office of the American Express, who lease the entire north side of the structure, ground floor. The second floor tower on this side is vacant, and has been so far as I know, since the General Offices were removed.

After the O&LC became the property of the Rutland, the second floor offices in the south tower were occupied by Mr. J. F. Carrigan, Supt. of the O&LC Sub-division, until August 1st, 1938, when, due to the resignation of Mr. Carrigan, the offices were abandoned, except for a small office used by the supervisor of track, Mr. Unwin.

The ground floor of the south tower houses the main waiting room, next west being the telegraph office, then the men's waiting room. Beyond that is the baggage room (in which, tradition has it, is a desk formerly the property of Mr. Wheeler) and lastly, the former supervisor of tracks office, now a storeroom.

Due to the financial condition of the Rutland, few repairs have been made in the past years, so that now, the building possesses little of its former grandeur. In this connection, some ten or twelve feet of the west end of the weather wall and canopy had to be removed and the rest strengthened because the necessary money to repair the affected parts could not be spared. Despite all this decay, signs of fine architecture still are visible. We can still see why Mr. Wheeler was justly proud of his accomplishment.

Beneath the canopy of this edifice has passed a brilliant array of notables, including not less than five Presidents of the United States, statesmen, leaders in military and civil life. Thru here came E. H. Harriman on the occasion of his marriage to Mary Averill, daughter of the O&LC's President, W. J. Averill. Thru here has passed too, the rumbling cargoes of a nation, since the Rutland is one of the four differential routes from the New England country to the West. I regret that space does not permit the recounting of the many interesting and exciting events that have transpired here, such as the night H. E. Keeler. dispatcher, watched fifteen cars and a caboose, in which a sleeping trainman unmindful of it all, whizzed by at an estimated speed of better than ninety-five miles per hour—a rear section of a train which "coasted away" from Chattaugay, stopping on a grade some fifty miles from its starting point.

Regardless of the motivating factor in its building, the fact remains that for three-quarters of a century the William A. Wheeler Station has stood as a monument to its builder. Standing stoutly against the storms, it, to me, typifies the rugged spirit of its early builders, the men who carved the cornerstone of Northern New York from the Adirondack Slope and brought to a waiting Nation the first, and still one of the best routes to the West. No numerical calculation, prefixed by a dollar sign, can convey to us now, the national, industrial or social benefits of their labors.

Continuous Rail

Illustrated lecture by H. S. Clarke, Engineer, Maintenance of Way, Delaware & Hudson Railroad, before the New York Chapter of the RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY *in the Engineering Societies Building, 29 West 39th Street, New York, on Nov. 12, 1938.*

Few of us realize how true it is that a railroad is never completed. Spectacular fast trains, mighty locomotives, and air conditioning, are only steps in a process of improvement that is continually going forward.

So, with permanent way, it is necessary, in order to meet these ever increasing demands for higher speeds and heavier loads, under which the cost of track maintenance must rise, to devise more comprehensive measures of track construction and maintenance methods than those which we all used in the late past. Such improvements to the standard of track construction must be radical and far reaching.

There is an old axiom that one must spend money to save money, just as one must spend money to make money, and the railroads have been looking around for the places to spend money to save money. On the Delaware and Hudson Railroad, we have been singularly fortunate in having a management who recognized this trend for some years, and have provided us with every opportunity and backing to develop a track structure and maintenance methods to meet these conditions.

With labor the largest item in railroad maintenance, there are opportunities for spending money to save labor, reducing maintenance costs, not necessarily during a current year, but of large importance in the long run, over a period of years.

Like most railroads, we have been carrying on a program of improved drainage, ballasting with ballast of suitable type and to an adequate depth, installing hardwood creosoted ties and heavy rail, and we have continued to carry on these programmes on a somewhat reduced scale throughout the depression. With the exception of steel ties, most railroads have been using these means to modernize their permanent way.

The steel tie, used on the Delaware and Hudson Railroad, is made by welding a standard tie plate on two eight-foot lengths of scrap rail, the welding being done with an automatic electric welding machine developed by the General Electric Company. We have, at present, some 165,000 of these ties in yards, sidings and, to some extent, on branch lines, their use being limited to where we have no signal circuits.

However, to meet the problem of better track, which may be more economically maintained, these steps, it was thought, would not be sufficient.

By preventing decay, the creosoting of ties lengthens their life; however, the treatment is expensive and, to obtain full advantage of the investment, the tie must be protected against mechanical wear and spike killing. The rail joint is universally recognized as the weakest point in the track and it is recognized that over 45 per cent of track labor is now necessary in order to keep the joint in proper line and surface. More

rails are renewed yearly and have their service life shortened by reason of battered and chipped ends than for any other cause, thus providing a major problem.

Here were two problems well worth considering.

To meet the first condition, a heavy double-shouldered tie plate was developed, canted and crowned, fastened to the tie by means of a compression screw spike, independent of the rail fastenings. Thus the tie plate became, in effect, a part of the tie and prevented mechanical wear of the tie.

It also was held necessary to get rid of the old destructive track spike and its spike-killing effect on the tie; therefore, it was felt necessary to develop a fastener to fasten the rail to the tie plate independently of the screw spike holding the tie plate to the tie and, at the same time, eliminate the inefficient anti-creepers generally in use.

Such fastenings must meet certain conditions:

They must stand being strongly tightened and remain thus in order to prevent the rails from creeping on the ties. They must have some elasticity in order to dampen the effect of the stresses developed in the track and the movement of the tie in the ballast resulting from impact. It must be possible, at any time, even after a number of years, further to tighten the fastening to take up wear or renew part or all the component parts. Could such a fastening be developed that would be effective instantly it was applied to resist the movement of rail longitudinally in either direction against movement from creeping, and also prevent the rail expanding or contracting?

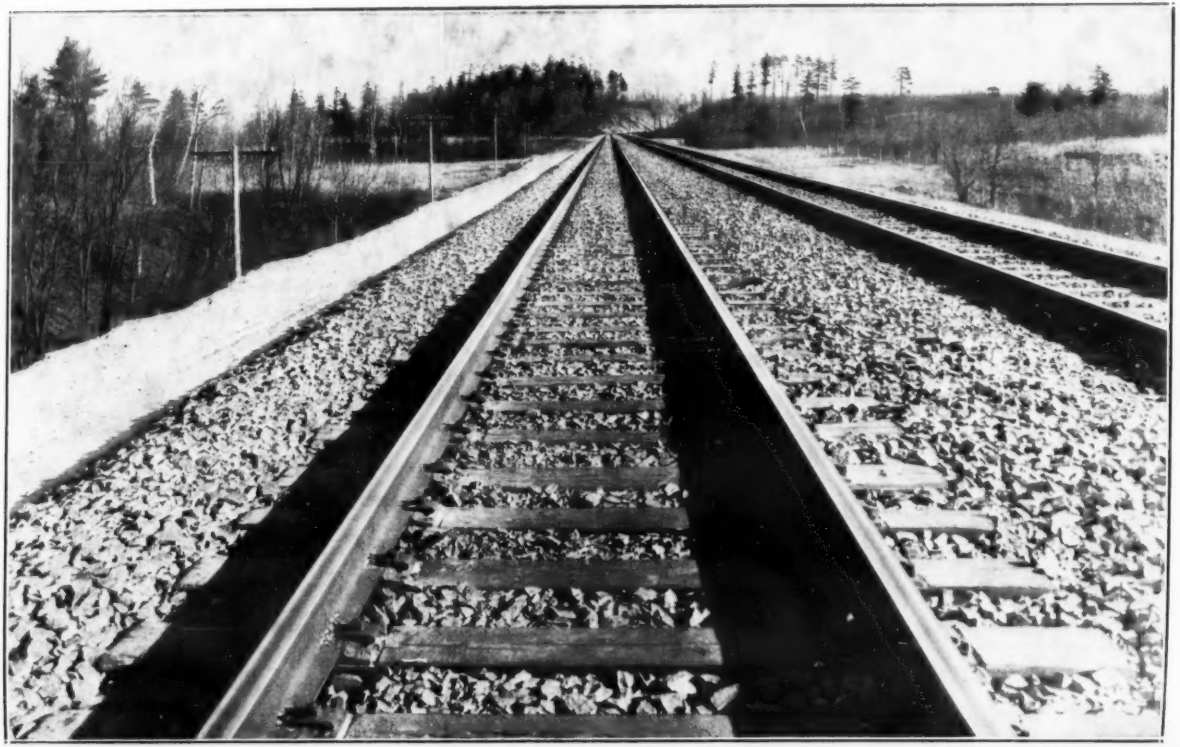
After many experiments with various types of clip fastenings, the spring clip fastening, now used on the Delaware and Hudson Railroad, was adopted, and used with the double-shouldered plate previously described, punched to take the fastening.

With these fastenings, the rail is held by means of two spring steel clips, bolted to the tie plate at the center of the crown and bearing on the base of the rail. Since the rail-to-tie-plate fastenings are independent of the tie-plate-to-tie fastenings, each group is free to perform only the work it is designed to do, while the rail, the tie plate, and the tie, are coordinated into one strong, but elastic and flexible unit.

The fastening of the rail to the tie plate and through that to the tie by means of the spring steel clips greatly strengthens the track structure, leaves it sufficiently elastic to absorb the impacts and loads applied to it and greatly decreases the vertical motion of the rail and of the tie over that of the standard track, although the normal wave motion of the rail is permitted to pass freely.

The decreasing of this vertical motion means a lessened pounding on the tamped ballast beneath the tie, it is this incessant pounding or pumping of the tie that breaks down the interlocked ballast, and causes the track to go out of line and surface.

Spring-clip constructed track stays in line and surface for longer periods than standard track, and the relative motion of the rail and tie remains substantially the same in all tests, which is extremely indicative of the uniformity of this type of track structure. The pressure exerted by the spring clip permits the free wave motion of the rail, but does not



A stretch of Main Line on the D. & H.

permit it to progress longitudinally. So well is the rail restrained that changes in length, due to expansion and contraction, are prevented. It was this feature of spring clip construction, combined with several other facts that led to the belief that it was possible and practical to weld rails into long lengths, lengths limited only by the necessity for insulated joints for signal circuits, and location of switches and crossovers.

There are two distinct factors which must be taken care of in standard track: one is the creeping of track, and the other is expansion or contraction of the rails due to temperature changes. Combined, there are many indications that these factors cause large temperature stresses in a great mileage of standard track and sometimes result in what is known as "sun kinks."

The tendency to movement by creeping is caused by the running of trains. When the movement takes place, it usually extends over comparatively long stretches of track. The principal cause is the wave motion of the rail which is set up by the moving trains. There is usually a slight upward and then a downward motion of the rail and ties just preceding a moving locomotive or train, owing to the flexibility of the rail.

The ground below also springs for quite a depth underneath the track and for some distance each side, so that there results a wave motion in the rail of much greater amplitude than at first appears. In thirty-nine foot rails or other short lengths, the propagation of the undulating wave motion is, more or less, arrested at every joint, causing each length of rail to move ahead. Hence running or creeping of rail takes place successively by rail lengths, one rail at a time; or, at most, by a few lengths acting together as one. With continuous rail, there are no joints to interrupt the wave motion of the rail, therefore, the tendency for rail to creep or run is eliminated.

Experiments conducted some years ago with a five-hundred-foot length of rail developed that, over a range of temperature changes between minus 20 degrees Fahrenheit and plus 20 degrees Fahrenheit, the length of the rail was unchangeable as between these limits, and no movement was observed, but above 20 degrees Fahrenheit, the rail was quite sensitive to temperature changes.

Where rail is so fixed that it cannot expand into an extended position when heated and cannot move in any other way, as, for instance, by buckling, it must remain unaltered in size since the external forces holding it are greater than the compressive stress set up by the temperature rise. Alternatively, if rail cools below the temperature at which it is fixed, a tensile stress is created to be resisted by the influence that fixes the rail; that is, the rail is compelled to undergo the stresses set up by expansion of the metal without lengthwise extension and vice versa.

These stresses are so far below the elastic limit of the rail itself that they can have no effect upon it and, therefore, are of no consideration in connection with the subject of continuous rail other than representing a force that tends to lengthen or shorten the rail.

Summarizing, we reach the following conclusions:

A stretch of Main Line on the D. & H.

(1) In long rails, the weight of the rail, in itself, reduces the theoretical amount of expansion or contraction of a rail.

(2) The double-shouldered tie plate has a tendency to bind the rail and further to decrease the amount of expansion or contraction.

(3) The holding power of the spring clips against longitudinal movement in either direction combined with the above facts, out-balances the forces of expansion and contraction, so that there is no lengthwise movement, except a slight movement at the end rails, not much more than would be expected in 39-foot rails.

(4) In continuous rail, rail creepage does not enter into the problem, as it does not exist to any appreciable extent.

(5) The ranges of temperature changes that actually affect changes in the length of rail are not the total temperatures of the climate in question, but only from approximately plus 20 degrees Fahrenheit to plus 130 degrees Fahrenheit, or the hottest day that may be encountered.

(6) In heavy rock ballast, little attention has to be given the temperature at which the rail is fixed, as it can be fixed within a range of, say, 65 degrees Fahrenheit to 90 degrees Fahrenheit without fear.

(7) In cinder or gravel ballast, which is lighter and has less holding power than rock ballast, the rail should be fixed within a range of say, from plus 80 degrees Fahrenheit to 95 degrees Fahrenheit.

(8) In ordinary track, there are numerous cases of sun kinks, due generally to poorly anchored track, which has been creeping, and closed the expansion gaps.

(9) Sun kinks in ordinary track always result from causes which easily may be determined and corrected.

(10) There should be far less fear of sun kinks in continuous than in ordinary track, as creepage does not enter the problem and the cause of sun kink is better controlled, may be noted and corrected quickly.

These facts were tested out in continuous rail laid in Albany in 1933 the longest rail being 2,750 feet; this rail has been in service four years without giving us any trouble. Further installations were made at Mechanicsville in 1934, at Schenectady and Windsor in 1935, and at Comstock and Cohoes in 1936 and, 1937, this year, all new rail laid was being welded. At the end of this year, we had 450,000 lineal feet of welded rail in service, or approximately forty-five track miles of continuous track.

This introduction of continuous rail brought up an important and exact condition that had to be met; namely, a sound, high-quality weld. Extensive studies and research were carried out, relative to the many phases of welding theory and practice, in both Europe and United States of America. Exhaustive tests were made under different procedures, with the co-operation of expert consultants, and have resulted in the development of satisfactory welds.

Test welds have been subjected continuously, day and night, to severe rolling load fatigue tests, following a similar procedure of the extensive rail investigations by the University of Illinois and considered the nearest approach to actual service conditions in track. Many other well-known rail tests were also made.

Carrying the continuous rail to place of installation.

Close-up of a Thermit Pressure Weld.

THERMIT PRESSURE WELD PROCESS:

The Thermit pressure weld is made by casting a steel collar around the base and web of the rail and then forcing the rail ends together, making a pressure weld in the head of the rail. This is accomplished by using a material known as Thermit. This material consists of powdered aluminum and iron oxide. At a high temperature, the aluminum unites with the oxygen in the iron oxide and there results aluminum oxide slag and free iron. In making a weld, this reaction is started with ignition powder and in about twenty seconds, the reaction is complete and the temperature has been raised to about 5,000 degrees Fahrenheit.

At this time, the molten mass is poured into molds previously clamped around the rail ends. The steel or iron being heavier than the aluminum oxide, slag flows in first and unites with the base and web of the rail ends while the aluminum oxide slag lies in the mold around the head of the rail and raises the temperature of the head to a welding temperature in three minutes, when the rail ends are forced together with clamps, making the pressure weld.

ELECTRIC FLASH WELDING:

The rail ends are clamped in the welding machine, one in fixed position, and one movable. Current clamps are connected to a low volt transformer. Short circuiting between the two faces preheats the rail ends. No preparation of faces other than cleaning or flux is needed. Continuous short circuiting burns off the high spots on the faces and builds up a pressure of gases between the rail ends. Air cannot gain access to the faces. There is, therefore, no oxidation of the faces, which remain chemically clean. About two minutes after the application of current, the faces are brought together under proper pressure. All molten metal is squeezed out and the weld is made. After the rail has been removed from the welder, it is slow-cooled or normalized in an oil furnace and then passes on to the grinders, where the excess metal, squeezed out by the welding pressure, is removed and the head of the rail properly surfaced.

On the Delaware and Hudson Railroad, it has been our practice to do the welding by either the Thermit or flash method on cars in the yard, welding the rail into 800 to 1500 foot lengths and then, when twelve strings have been completed, to haul the train load out and unload it where it is to be installed.

The train loads of rail have been moved from point of welding to point of installation, in some cases, over fifty miles, without difficulty or any special fastening of the rail on the cars. Later, by the Metal-Thermit Process, closure welds were made in track or alongside the track, to make continuous lengths, except where necessary to break for signal circuit or at switches.

Continuous track has many advantages over track laid with the standard length rails, some of these being as follows:

(1) Joint maintenance is eliminated, including maintenance of bolts and angle bars, surfacing and lining.

(2) Rail life increased, joint batter ended, less frequent rail laying.

(3) Rail creepage eliminated.

(4) Deterioration of the joint ties eliminated and not necessary to space ties.

(5) Elimination or replacement of joint bars and reconditioning rail ends.

(6) Smoother riding for passengers.

(7) Rolling stock maintenance reduced; no shock at joints.

(8) Signal circuit bonding eliminated.

(9) Less tractive power is required to haul trains over jointless track.

It will be of interest to you to know that on one railroad using electric trains, the "nosing" of the trains has been very serious. In most cases, where they had this "nosing" trouble, it would start immediately when the rail was renewed, and, in a very short time, there were indications of the rail being very badly cut. An installation of a mile of continuous track with spring clip construction, put in open track about a year ago, thus far, does not indicate the slightest sign of "nosing" or damage to the rail from this cause.

It is, also, of interest to note that there have been several installations of continuous rail on other roads, both in the open and in tunnels, and it appears that in the next year there will be many more.

I had the pleasure of conducting an English Engineer over our installations, and he advised me that on the London Tubes, which are much smaller in size than those in New York, the contour of the tube giving little clearance outside the cars, the noise was so great, it was impossible to talk to a person sitting beside you without shouting. In an endeavor to overcome this, they laid some test stretches of welded track and, in addition, placed some sound insulation around the lower sides of the tube, resulting in an eighty percent reduction in the noise.

Apparently there are many advantages of welded or continuous rail that, as yet, we have not realized, and more installations, under various conditions, will bring these out.

While it is a little early to make any reasonably accurate estimate of the reduction in maintenance expenditures resulting from continuous rail and spring clip construction, there is already obvious a substantial saving. We have track of this type, put up several years or more ago, over which there is a fairly heavy traffic, on which there has since been no work and which is in as good line and surface as when originally put up. This track gives every indication of staying in good line and surface for many more years with little, if any, attention. Railroad men, who have been studying continuous rail, feel that this development opens up the possibility of securing far stronger, safer and better riding track with a reduction in future maintenance expenditures of 50% or more, plus a now unascertainable saving in maintenance of rolling stock.

Chicago Union Station Company

By A. B. Olson,
Valuation Attorney, Chicago Union Station Company

Paper read before the Joint meeting of the Engineering Division of the Western Society of Engineers and the Chicago Chapter, Railway and Locomotive Historical Society, October 21, 1936.

For the past 56 years the railroads making up the Union Station group have been associated for the purpose of providing terminal facilities in Chicago. However, the Chicago Union Station Company actually dates from July 3, 1913. This company was the outgrowth of a pleasant relationship which had existed since September 7, 1880, when the Burlington, Milwaukee and Alton Railroads were admitted as tenants into a station built and owned by the Pittsburgh, Ft. Wayne and Chicago Railroad Company at Canal and Adams streets.

A history dealing with Union Station group of railroads properly begins with the Chicago, Burlington & Quincy Railroad Company, as it was the first to enter Chicago. Its line in 1852 extended from Aurora, Ill., to West Chicago, a distance of 12 miles. From West Chicago to Chicago, it used the rails of the Galena Branch of the Chicago & North Western Railroad Company and its first Chicago terminal was the old North Western Station at Kinzie street. It continued to use this station until 1856 when the St. Charles Air Line was constructed, then the Burlington moved to the Randolph Street Station of the Illinois Central Railroad via the St. Charles Air Line. In 1864 the Burlington built its present line from Aurora to Chicago, via Naperville, but continued to use the St. Charles Air Line to the Illinois Central Randolph Street Station until 1880.

The Chicago fire of 1871 completely destroyed the Randolph St. Station, and from 1871 to 1880 the Burlington occupied temporary structures which were hastily provided but proved so unsatisfactory that on September 7, 1880, they entered into an agreement with the Pittsburgh, Ft. Wayne and Chicago Railroad Company to use its Union Passenger Station at Canal and Adams street jointly with the Milwaukee and Alton Railroad Companies.

The next railroad of the group to reach Chicago was the predecessor of the Chicago and Alton, namely, the Joliet and Chicago Railroad Company. They first entered Chicago in 1854 over the Rock Island tracks and used the Rock Island Station until 1858. Beginning January 1, 1858, they occupied their own station at the southeast corner of Van Buren and Canal streets which was a combination passenger and freight station, and it also housed their general offices.

On December 28, 1863, the Joliet and Chicago entered into an agreement with the Pittsburgh, Ft. Wayne and Chicago Railroad Company to jointly use its passenger station at Madison and Canal streets. One of the interesting provisions of this agreement was that the Joliet and

Chicago Railroad Company should have a piece of ground 12′x18′ on Adams street between Canal street and the Chicago River on which they would construct a tool house. The old Chicago and Alton used this station until 1871 when it was destroyed by the Chicago fire. They then occupied temporary quarters at the same location until they entered into an agreement on September 7, 1880, with the Pittsburgh, Ft. Wayne and Chicago Railroad Company to use the new station which was to be constructed at Adams and Canal streets.

The Pittsburgh, Ft. Wayne and Chicago Railroad Company, now a part of the Pennsylvania Railroad Company, completed its line from Ft. Wayne to Chicago January 1, 1859. On August 16, 1858, the City of Chicago granted the Pittsburgh, Ft. Wayne and Chicago Railroad Company an ordinance giving it permission to construct, maintain, and operate tracks between Van Buren and Kinzie streets, between Canal street and the Chicago River. The first Pennsylvania station in Chicago was erected by the Pittsburgh, Ft. Wayne and Chicago Railroad Company during 1858. In 1866 Madison street viaduct was built and the Station layout consisted first of a ticket office 20′x17′, facing Madison street, on the southeast corner of Canal and Madison streets. From this ticket office a timber ramp extended down to approximately half way between Madison and Adams streets to a building called a passenger house, 70′x25′. To the south under Adams street was located a baggage building 20′x100′; under Madison street there was an express building 60′x30′. There were two passenger sheds, one 400′ long, and one 300′ long. This station was used until it was destroyed by the great fire of 1871, and then it occupied temporary quarters at the same location until it built its new station in 1880 at Adams street.

The Chicago, Milwaukee & St. Paul Railroad Company incorporated in Illinois on April 1, 1872, to build a railroad from Chicago to the Wisconsin State Line, and this road was constructed from Western Ave., to the State Line that year. This same year it acquired half ownership in the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad from Western Ave., to Canal street and used the Pittsburgh, Ft. Wayne and Chicago Railroad Company station at Madison and Canal streets until 1880 when it entered into the new station at Canal and Adams streets. In 1874 the Milwaukee, Alton and Pittsburgh, Ft. Wayne and Chicago Railroad Companies entered into an agreement to construct a station at Canal and Adams streets but the station was never built and they continued to use the old station at Madison street.

We now have our group joined in the first Union Station in Chicago. At the time this station was built Chicago had a population of 505,185 people, and station proper occupied land approximately 135 feet by 1770 feet, immediately east of Canal street from Van Buren street to Madison street. In addition to the station building proper, there were three buildings for mail and baggage. The Station tracks were covered by a huge trainshed. The track layout was of a through station type, with approaches from north and south, but the station was actually operated as a double stub with trains over-running the center of the layout at both ends. However, in 1880, when this station was constructed, it was considered a model in terminal facilities.

In 1912, the population of Chicago was 2,301,946. For several years, there was a struggle going on in the minds of the men charged with the responsibility of making decisions as to the railroad terminal situation in Chicago. There was a constant clamor in the newspapers for a new union station. The old station itself and the approach tracks were hemmed in in such a way by freight stations and industries as to render any expansion a complicated and costly undertaking. There were many plans for a new station considered between 1900-1912 and reference to these can be found in an article by Mr. Joshua D'Esposito in the November, 1925, issue of *The Journal of Western Society of Engineers*, so no time will be taken to discuss them.

This brings us to July 3, 1913, when the present Chicago Union Station Company was organized for the purpose of constructing, maintaining, and operating a Union Station in Chicago. It was originally planned that the Chicago and Alton Railroad Company was to become a 1/5 owner, but owing to receivership difficulties, they were unable to participate in the cost of construction, so were finally admitted as a tenant. The ownership was divided equally between the Pittsburgh, Ft. Wayne and Chicago, and Pittsburgh, Cincinnati, Chicago & St. Louis Railroad Companies, which comprise the Pennsylvania Railroad, and the Burlington and Milwaukee Railroad Companies.

The Chicago Union Station project had to be coordinated with and worked into The Chicago Plan Commission's scheme of a "City Beautiful" plan. It involved real estate transactions of a complex nature costing $45,000,000. It necessitated the creation of new freight terminals for the Pennsylvania, the Burlington and the Alton, costing approximately 8 million dollars.

The securing of the enabling ordinance of March 23, 1914, from the City of Chicago is a story in itself. It seemed at one time that the Station Company would be forced to pay a million dollars to certain politicians in order to secure its passage. It is to the everlasting credit of our General Counsel, Mr. Frank J. Loesch, that he refused to be a party to any such demands of the politicians, and carried the fight to the general public, who, when aroused, forced its passage.

Briefly, this ordinance provided for payment to the city of some 3 million dollars for vacated streets, provided that the Station Company should rebuild and perpetually maintain 12 viaducts from Lake street south of Roosevelt Road, elevate and widen Canal street from Washington street to Roosevelt Road, relocate all public utilities at its own expense in the Station Company territory, and provided for building Adams and Monroe street bridges across the Chicago River.

Construction actually started in 1914, but at its outset was beset by vicious labor conditions which culminated in strikes, and these strikes seriously delayed the project. One of the early demands of the Union was an attempt to force the owning lines to employ all Union labor on their respective systems.

In 1917, the United States entered the World War and construction was stopped until 1919. As the project developed, renting conditions in the city changed, so it became advisable to provide additional office space

in the head house, so these plans had to be redrawn to provide for a 20 story head house, after the foundations had been placed. Introduction of the parcel post service necessitated redevelopment of the loading and unloading platforms and the enlargement of carrier facilities necessary for parcel post business.

In December, 1922, the Van Buren Street mail terminal building was completed and placed in operation. In July, 1925, the new station was officially opened and the removal of the old Union Station at Canal and Adams streets was started. The entire project, comprising some 35 acres, extended from Lake street to Roosevelt Road, and from Canal street east to the Chicago River, was finally completed in 1927. The cost was approximately 90 million dollars. It is a one level station in the full meaning of the word; that is, one in which patrons find all of the facilities of a modern passenger terminal on one floor and that floor the same as the track level. It was the first station of any magnitude in which passengers and baggage were handled on separate platforms. Its interior cab drive eliminates the use of street curb space. The shops and restaurants are operated by Fred Harvey.

In 1927 occurred the first large air right development in the west, when the Station Company sold to the Daily News the property over its tracks between Madison and Washington streets. In 1931 the Station Company sold to the United States Government the property over its tracks between Van Buren street and Harrison street, and there was subsequently constructed the largest Post Office in the world. This sale necessitated the removal of the old power house at Harrison and Canal streets, and a new modern power house was built at Taylor street and the Chicago River.

The Chicago Union Station Company is still owned by its four original partners and the Alton continues to use it as a tenant. Thus we come to the present time of this brief history of the Chicago Union Station Company, which is a credit to Chicago and to the railroads that built it.

New Books

DANIEL WILLARD RIDES THE LINE, By Edward Hungerford, 301 pages, 9x6, illustrated. Bound in cloth. Published by G. P. Putnam's Sons, New York, N. Y. Price $3.50.

This book is an autobiography of Mr. Willard, President of the Baltimore & Ohio R. R. It recounts the hardships on the Vermont farm, his days on the old Connecticut & Passumpsic Rivers R. R. as fireman and locomotive engineer, his departure for the Lake Shore & Michigan Southern and his pushing to the Northwest and his work with what is now the Soo Line.

His failing eyesight prevented him from completing his course at Massachusetts Agricultural College. He has always been a passionate lover of good books and for mastering details. His work on the Soo Line brought him to the notice of that capable railroader—Frederick D. Underwood. Mr. Underwood took Mr. Willard with him when he came to the Baltimore & Ohio and again the pair moved to the Erie. It was the "Empire Builder"—James J. Hill that took Mr. Willard to the Chicago, Burlington & Quincy R. R., but it was Mr. Underwood that recommended him to Judge Lovett of the Union Pacific that brought him back to the Baltimore & Ohio R. R. as its chief executive.

What Mr. Willard did to rejuvenate the Baltimore & Ohio R. R. and to bring it up to one of our foremost carriers on the Atlantic seaboard has been recorded in a delightfully interesting fashion by the author. Mr. Hungerford admits his prejudice for Mr. Willard but it is a prejudice born from affection. This and the fact that the autobiography was prepared during the life time of the individual makes the work of unusual value. Mr. Willard and Mr. Hungerford are outstanding men in their respective fields. The story is told simply but in a charming and engaging manner. The book deserves a place in the library of everyone interested either in the early days of railroading or in our railroad men.

HIGH IRON, By Lucius Beebe, 225 pages, 11x8, illustrated, bound in cloth. Published by D. Appleton-Century Co., New York, N. Y. Price $5.00.

This is essentially a book of trains and the author admits his love for the subject at the very outset. The book gives us some railroad history and another chapter tells us of some of the early speed records. The chapter on "Power" is one of the most interesting discussions on the various types of locomotives and their performance that has been written for the layman in years. It is non-technical but decidedly informative. And last but not least, the illustrations help tell the story. The early scenes on the Central Pacific to the frontispiece of "The Chief" thundering up the grade of the Cajon Pass all add vitally to the story and there are countless others. They, in themselves, furnish a photographic record of American railroading and the author is to be congratulated for his skill as a photographer and his ability as a writer to leave for us a

record of what our roads have accomplished in the last few years as compared with the past.

DEMPSTER & SON, By Maurice Griffiths, 358 pages, 7¼x4⅝. Bound in cloth. Published by Rich & Cowan, Ltd., 37 Bedford Square, London, W. C. 1, England. Price 7/6.

This is a novel dealing with a father and his son. Nathaniel Dempster, English born, civil engineer by profession, comes to America and is engaged in the survey of a railroad between Charleston, S. C. to Wilmington, N. C. The Civil War interferes and although his wife's people espouse the southern cause, Nathaniel joins the Union Army and is one of the many that were in Sherman's famous march. After the war it is his ambition to rebuild the railroads he had destroyed. Success with a smaller one brings him the position of Superintendent of one of the railroads entering Memphis and later the Presidency. Keen river competition leads him to believe that a consolidation of the roads from St. Louis and perhaps from Chicago, southwards, the only solution. The tragic death of his wife in an accident on his own road, disappointment over the failure of his scheme of consolidation causes him to return to England with his two children.

In England he buys an interest in the locomotive building firm of his apprenticeship. The death of his partner and later, his own death leaves Clive, his son to carry on the works, not without its difficulties in his own family and in his own, our modern times.

The author has given us much that is of interest of our Civil War days and the reconstruction period and these will be of interest to the average American. In spite of the span of years covered, the author has succeeded in retaining the interest of the reader, and after all, that serves the purpose of the novel.

Incidentally, all three authors mentioned in this review are members of this Society.

Worth Reading

(Compiled by ELIZABETH O. CULLEN, *Reference Librarian*, Bureau of Railway Economics, Association of American Railroads, Washington, D. C.)

BOOKS AND PAMPHLETS

A Century of Progress—London-Birmingham—1838-1938. 44 pp. Illustrated. Maps: London-Birmingham Ry., 1838; L. M. S. Ry., 1938. London, England, London Midland & Scottish Ry. Co. Souvenir of the Centenary, September 1938.

Daniel Willard Rides the Line—The Story of a Great Railroad Man, by Edward Hungerford. 301 pp. Illustrated. New York, G. P. Putnam's Sons.

The Devastation and Restoration of New England's Vital Life Line. 47 pp. incl. illustrations. New Haven, Conn., The New Haven R. R. Map, p. 24-25, showing course of hurricane of September 21, 1938, with marginal notes of extent of damage and time required for restoration of railroad service.

Frank and Jesse James In Review for The Missouri Society, Washington, D. C., by Harry B. Hawes. Cover-title, 22 pp. Washington, D. C., Mr. Hawes. His address to the Society, February 25, 1939, following a preview of the moving picture "Jesse James." ". . . all the assembled Missourians agreed that while, as drama, the reel is intense and interesting, it is historically inaccurate. Your new president, Congressman Zimmerman, . . . requested me to appear this evening and attempt to draw an historically correct picture of the real James boys . . ." p. 1. Chronological account of "peace-time outlawry" pp. 13-18, begins with bank robbery at Liberty, Mo., in 1866, includes "an innovation: the robbery of a train . . ." in 1873, concluding with Jesse's death.

High Iron—A Book of Trains, by Lucius Beebe. 226 pp. Illustrated. New York, London, D. Appleton-Century Co., Inc. "Car Heralds, Devices and Insignia of the Principal Railroads of North America," pp. 211-216. "A Glossary of Railroad Terms, Slang and Usage," pp. 219-225.

Locomotive Cyclopedia of American Practice . . . Including a Section on Locomotive Shops and Engine Terminals—Tenth Edition—1938, compiled and edited for Association of American Railroads—Mechanical Division, by Roy V. Wright, Robert C. Augur, H. C. Wilcox, and H. P. Foster. 1232 pp. including illustrations and diagrams. ". . . In order that this book might be kept to a reasonable size, little except current practice is included. For information covering older locomotives and products, earlier editions should be consulted." Foreword p. [4]. "Diesel Locomotives," Section 16, pp. 917-950.

Organization and Traffic of the Illinois Central System. 526 pp. Maps, Illustrations. Chicago, Illinois Central Railroad Co. "Part I. History and Property of the Illinois Central System" pp. 3-76; "Part II. Organization and Operation of the Illinois Central" pp. 79-162. "Part III. Traffic Department Functions and Procedure" pp. 165-275; "Part IV. Passenger Traffic" pp. 279-316; "Part V. Passenger Traffic" pp. 319-422; "Part VI. Traffic Outlines By Areas" pp. 425-522. End-paper map of system and affiliated lines.

Railroads and Geology in the United States—An Exhibit of Reports and Other Material in the Library Showing Their Interrelations for 130 *Years . . . with Notes,* by Elizabeth O. Cullen. Cover-title, 29, 1 mimeo. pp. Washington, D. C., Bureau of Railway Economics Library. Arranged for meeting of Chi Upsilon (women's geological fraternity), Epsilon Chapter, The George Washington University, on November 17, 1938.

Report on Streamline, Light-Weight, High Speed Passenger Trains. 68 pp. New York, Coverdale & Colpitts. Dated June 30, 1938. Summarized in Traffic World, November 5, 1938, pp. 947-948; in Railway Age, November 12, 1938, pp. 717, 723-724. Prefatory Remarks, p. 9, begins: "The arrangement . . . is partly chronological and partly geographical. The development of the streamline train was initiated and has been carried farther in the West than in the East, and it, therefore seemed proper to begin the report with the discussions of the trains of Western lines and proceed eastward to the trains of roads in New England . . . "

A Review of Railway Operations in 1938, by Julius H. Parmelee. 36 pp. Washington, D. C., Bureau of Railway Economics, Association of American Railroads. Special Series No. 67. ("Reprinted by permission from Railway Age for January 7, 1939, and figures revised to March 15, 1939.")

The Romance of American Transportation, by Franklin M. Reck. 253 pp. Illustrations. Maps. New York City, Thomas Y. Crowell Co. Maps include: "How Americans Traveled in 1789" p. 6; "Railroads in 1840" p. 115; "Railroads in 1850" p. 117; "Railroads in 1860" p. 119. Chart: "How Passengers Travel and How Freight Is Carried" now, p. 245.

Schenectady's Nonagenarian Industry 1848-1938. 23 pp. "The 'Twentieth Century Limited' " painting by A. Sheldon Pennoyer, reproduced in color, p. 7. Schenectady, N. Y., American Locomotive Company. " . . . December thirteenth, nineteen hundred and thirty-eight was an eventful day in the annals of the American Locomotive Company. The citizens of Schenectady, through their Chamber of Commerce, set this day apart to commemorate the 90th Anniversary of the founding of the locomotive industry in Schenectady . . ." p. 4. 277 years of transportation history in that section of New York vividly summarized by Mills Ten Eyck, in his address pp. 7-21.

The Story of the Great Northern Railway Company—And James J. Hill, by Duncan J. Kerr. 43, 1 pp. including illustrations and maps. New York City, The Newcomen Society, American Branch. A Newcomen Address at dinner in honor of Great Northern Railway Company, New York City, January 5, 1939.

A Survey of Transportation in the United States . . . In Report of Committee Appointed September 20, 1938, by The President of the United States to Submit Recommendations Upon the General Transportation Situation, December 23, 1938, pp. 37-88. Washington, D. C., The Committee.

Texas Almanac and State Industrial Guide 1939-1940. 512 pp. Illustrations. Folding Map. Dallas, Texas, The Dallas Morning News. "History of Texas" pp. 49-82 includes of course, data from the wanderings of Cabeza de Vaca in 1528 to the present, summarized in "Population and Transportation" p. 74. "Development of Transportation Systems" pp. 246-261, includes "Texas Railroad Statistics" p. 247; "Statistical History of Railroad Operation in Texas, 1891-1937" p. 248, and "Early Railroad Building in Texas" by S. G. Reed, pp. 248-253.

Trains—New Edition (Streamlined), by Robert Selph Henry. 110 pp. including illustrations. End-paper maps "A Century of Railroads in America." Indianapolis, Indiana, The Bobbs-Merrill Co. " . . . The rail network of the United States may be looked upon as practically completed. For a century it has increasingly knit together the national, both in peace and in war . . . Our unity as a nation is no more definitely due to it, however, than is the business and economic unity of our lives today . . . It was not planned in the beginning. It happened because of the zeal and courage, the initiative and imagination of countless men, most of whom are forgotten . . . Men staked their capital on uncertainties. Some won great fortune, more lost . . . Whatever its wastes and faults, that venturesome way . . . did succeed in creating a continent-wide system of transportation which carries every sort of freight, over all distances and between all stations, in all seasons and in all weathers, at an average revenue of one cent for hauling a ton one mile—the basic, essential transportation of America." pp. 104, 104. "Freight Car Initials"—appendix, pp. 108-110.

ARTICLES IN PERIODICALS

Electric Locomotives—The Trend of Recent Design and Practice, by B. S. Cain. Illustrated. Mechanical Engineering, November 1938, pp. 813-822, 828.

From Silk Stockings to Steel Bridges, by E. A. Bromley. " . . . As I have said previously, the two major Railways of Canada are the largest buyers in the country . . . " p. 36. As to the silk stocking in reply to a question, "Everyone here knows who wears them . . . They are bought for re-sale at Jasper Park Lodge." p. 37. Canadian Railway Club, Montreal. Official Proceedings, February 1939, pp. 32-37, with discussion pp. 37-41.

The Geological Aspects of Railway Construction—Gradients on the London-Birmingham Line, by Stanley H. Beaver. With profile showing underlying geological formations. Modern Transport, London, England, September 17, 1938, pp. 21-22.

The Iron Road Linking East and West—Developing the Rail Route to India, by S. Jepson. " . . . it will be possible very shortly to travel . . . from the Persian Gulf to the English Channel. This article . . . gives practical advice to those anxious to do the Overland journey by train." Foreword, p. 20. Bombay, Baroda & Central India Annual, 1939, pp. 20-29.

The New England Floods, Hurricane and Ocean Storm of September 1938, by C. E. Smith. Abstract of address at annual meeting, American Railway Engineering Association, March 14, 1939. Railway Purchases & Stores, April 1939, pp. 184-188.

Northampton's First Railway—Was It Britain's One and Only "Railway-road"? by Kenneth Brown. With maps of 1807 and 1832. Railway Gazette, March 24, 1939, pp. 502-503. Comment in letter published in March 31, 1939 issue, p. 535.

North America's Mile-A-Minute Runs, compiled by Donald M. Steffee. "Despite hard times, there was a greater speedup in 1938 than in any other year in railroad history." p. 7. Illustrations and Tables. Railroad Magazine, February 1939, pp. 7-31.

The Relation of Locomotive Design to Rail Maintenance: As the Mechanical Engineer Faces It, by Kenneth Cartwright; *As the Maintenance Engineer Sees It*, by H. R. Clarke. " . . . Our experience, therefore, clearly indicates that on a modern high speed locomotive, in order to eliminate the possibility of rail damage due to slipping at high speed the actual equivalent overbalance in the main wheel should not be greatly in excess of 100 lbs. . . The one thing definitely lacking today is concrete information as to just what reciprocating balance is necessary on a modern locomotive . . . " Mr. Cartwright, p. 42, Western Railway Club, Chicago, Ill. Official Proceedings, March 1939, pp. 19-43. Abstract in Railway Age, March 25, 1939, pp. 513-520.

Steam Locomotive Slipping Tests, by T. V. Buckwalter and O. J. Horger. "New Haven Tests" pp. 90-91. "New York Central Tests" p. 91. "Santa Fe Tests" p. 91. "Burlington Tests" pp. 92-96. Illustrations and figures. New York Railroad Club. Official Proceedings, February 1939, pp. 90-106. Abstract in Railway Age, March 4, 1939. pp. 377-383.

Transporting the Grain Harvests of the World, by Cecil Bentham. Maps. Diagrams. " . . . 'The wheat crop is harvested in one country or another all the year round, as shown in the following tables: . . . '" p. 16. Journal of the Institute of Transport, London, England, November 1938, pp. 15-44.

Les Transports par Rail et par Route en Honrie, by Georges Sarmas. Railroad map of Hungary, pp. 372-373. Map of Transcontinental Route, London to Istanbul, p. 375. Revue Economique Internationale, Brussels, Belgium, February 1939, pp. 346-375. The editorial comment "Hungarian Railways in 1938" in Railway Gazette, March 31, 1939, p. 534, mentions more recent developments.

The World in 1963, by G. Edward Pendray, G. W. Penney, H. C. Rentschler, and E. U. Condon. Concluded with " . . . composite of forecasts: Air Travel; Highway Construction; Freight Traffic; Rail Transportation; . . . Progress of Rocket Research . . . " pp. 26-30. Railway Club of Pittsburgh. Official Proceedings, November 17, 1938, pp. 6-30.

Railroads in the United States—A Condensed History of the Inception and Development of Railroad Transportation, by Harriet V. Heald. 24 pp. cover-title: *The Story of the Railroads.* "Service Booklet No. 182, distributed by newspapers maintaining The Washington Service Bureau, Washington, D. C."

In Memory of

PAUL HIPPELY
1464 Grove Street
San Francisco, California
Who Died in 1939, Date Unreported.